RPM Plus Zambia Project, 2000–2005

End-of-Project Report

Management Sciences for Health
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About RPM Plus

RPM Plus works in more than 20 developing and transitional countries to provide technical assistance to strengthen pharmaceutical and health commodity management systems. The program offers technical guidance and assists in strategy development and program implementation both in improving the availability of health commodities—pharmaceuticals, vaccines, supplies, and basic medical equipment—of assured quality for maternal and child health, HIV/AIDS, infectious diseases, and family planning, and in promoting the appropriate use of health commodities in the public and private sectors.

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antimicrobial resistance, antiretroviral therapy, child health, President's Emergency Plan for AIDS Relief, HIV/AIDS, information management, malaria, pharmaceutical management, rational use, reproductive health, tuberculosis, USAID, voluntary counseling and testing, Zambia

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CONTENTS

ACRONYMS AND ABBREVIATIONS

ABC	Method for classifying pharmaceutical products according to their relative importance; also called Pareto analysis
ADSS	alternative drug supply system
AED	Academy for Educational Development
AFRO	Regional Office for Africa [World Health Organization]
AIDS	acquired immunodeficiency syndrome
AMR	antimicrobial resistance
AMTSL	active management of the third stage of labor
ANC	antenatal clinic
APUA	Alliance for the Prudent Use of Antibiotics
ARCH	Applied Research on Child Health Project [Johns Hopkins University]
ART	antiretroviral therapy
ARV	antiretroviral
AWG	advocacy working group
BCC	behavior change communication
CBoH	Central Board of Health
CDC	Centers for Disease Control and Prevention [United States]
C-DMCI	Community-level Drug Management for Childhood Illness (approach and manual/assessment tool)
CHAZ	Churches Health Association of Zambia
CIDRZ	Center for Infectious Disease Research in Zambia
COH	Corridors of Hope
CRHC	Commonwealth Regional Health Community
CRHCS	Commonwealth Regional Health Community Secretariat
DCI	Development Cooperation Ireland
DELIVER	Follow-on project to Family Planning Logistics Management [JSI]
DFID	Department for International Development [United Kingdom]
DHIO	District Health Information Officer
DHMT	District Health Management Team
DILSAT	District Integrated Logistics Self-Assessment Tool
DMCI	Drug Management for Childhood Illness (approach and manual/assessment tool)
DMS	Data Management Specialist
DTC	Drug and Therapeutics Committee
EML	essential medicines list
FHI	Family Health International
FP	family planning
FPLM	Family Planning Logistics Management (project) [JSI]
GDF	Global Drug Facility [WHO]
GRZ	Government of the Republic of Zambia
HIV	human immunodeficiency virus
HSSP	Health Systems and Services Strengthening Program
IEC	information, education, and communication

INRUD	International Network for Rational Use of Drugs
JHPIEGO	Johns Hopkins Program for International Education in Gynecology and Obstetrics
JICA	Japan International Cooperating Agency
JSI	John Snow Inc.
LUDHMT	Lusaka Urban District Health Management Team
MCH	maternal and child health
M&E	monitoring and evaluation
MoH	Ministry of Health
MSH	Management Sciences for Health
MSL	Medical Stores Limited
NDP	National Drug Policy
NGO	nongovernmental organization
NMCC	National Malaria Control Centre
NORAD	Norwegian Agency for Development Cooperation
PMTCT	prevention of mother-to-child transmission
PMTCT IP	Prevention of Mother-to-Child Transmission Implementation Plan
PPH	postpartum hemorrhage
PRDU	Promoting Rational Drug Use (course)
RDF	Regional Drug Forum [CRCHCS]
RPM Plus	Rational Pharmaceutical Management Plus Program
SFH	Society for Family Health [JSI]
Sida	Swedish International Development Cooperation Agency
SOP	standard operating procedure
SP	sulfadoxine-pyrimethamine
STGs	standard treatment guidelines
STI	sexually transmitted infection
SWAp	sector-wide approach
TB	tuberculosis
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
VCT	voluntary counseling and testing
VEN	vital, essential, necessary (method for categorizing medicines and supplies)
WHO	World Health Organization
ZIHP	Zambia Integrated Health Program [USAID]
ZNF	Zambia National Formulary
ZNFC	Zambia National Formulary Committee
ZPCT	Zambia Prevention, Care, and Treatment Partnership
ZVCTS	Zambia Voluntary Counseling and Testing Service

OVERVIEW OF THE HEALTH SECTOR

In 1992, the new Government of the Republic of Zambia (GRZ) made a paradigm shift in the health sector, repositioning its national health service under a comprehensive program for health reforms. This aggressive reform process was initiated to build a health care system that would assure Zambians equity of access to cost-effective and qualitative health services located as close to the family as possible. Key aspects of the reform strategy involved restructuring the managerial systems of leadership, accountability, and partnership.

The Ministry of Health (MoH) asserted a leadership role in reforming the health care system while delegating the management of local health services to local health boards. As a result, accountability for provision of good-quality health services responsive to local needs was shifted to the communities. Restructuring of the health management paradigm involved the creation of new partnerships at the community, district, provincial, national, and international levels, with the goal of making the best use of available resources. Private for-profit as well as nonprofit organizations were also engaged in the process, drawing on their strengths and building on their weaknesses in order to serve households better. The entire process required a rapid, dramatic capacity-building effort in addition to a complete transformation in the way health services are provided.

The devolution of health services management to the local level entailed both a divergence from previous bureaucratic practices as well as decentralization of power. The MoH retained overall political responsibility, encompassing policy formulation, legislation, monitoring and evaluation (M&E), and international relations, while the newly established Central Board of Health (CBoH) assumed responsibility for overall technical management of the health sector.

This new MoH/CBoH partnership strategy necessitated a redefinition of the relationship between the donor community and cooperating partners. Previously, donors were effectively seen as cooperating partners, with a joint ownership of the health reform process. This relationship was perceived to be inappropriate by some observers, who pointed out that donors were in effect controlling the reform process (WHO 1997). The U.S. Agency for International Development (USAID) was one of the key original partners that bought into the health reform process, either through direct budget support or through collaborating or bilateral agencies.

As a result of another policy shift in 2005, the CBoH will be dissolved and the MoH will re-assume its traditional role of planning management, service delivery, resource allocation, and generation of resources.

EXECUTIVE SUMMARY

USAID had accessed expert pharmaceutical management support from the Management Sciences for Health (MSH) Rational Pharmaceutical Management (RPM) project from 1996 until the end of the RPM project in 2000. When the successor RPM Plus Program was awarded, RPM Plus restructured operations in Zambia, opening an office in Lusaka, drawing additional support from its U.S. headquarters in Arlington, Virginia. Technical assistance activities carried out from 2000 to 2005 are summarized below.

Year 1

In 2000, USAID awarded the new RPM Plus Program with funding to provide technical assistance in the management of essential medicines and other health commodities, including vaccines, supplies, and equipment. Building on efforts begun under the RPM project, RPM Plus continued to work toward establishing sustainable improvements in supply systems performance, promoting wider access to and better use of health commodities. Collaborating with policy makers, managers, and health care providers from both the public and private sectors, RPM Plus has worked to promote and develop technical and managerial approaches for achieving more appropriate, cost-effective use of health commodities. RPM Plus has assisted the GRZ in procuring, selecting, quantifying, and distributing medicines, as well as in improving medical store management and promoting rational medicines use. This assistance has encompassed all major public health areas, including malaria, HIV/AIDS, child health, reproductive health, and antimicrobial resistance (AMR).

In the first year, 2000–2001, RPM Plus provided technical assistance to MoH/CBoH in implementing the GRZ's pharmaceutical services plan. RPM Plus supported Zambia National Formulary Committee (ZNFC) activities, conducted an assessment of the District Integrated Logistics Self-Assessment Tool (DILSAT), and assisted the National Malaria Control Centre (NMCC) in implementing Roll Back Malaria strategies, such as a survey of antimalarial pricing in the private sector. RPM Plus also responded to USAID and partner requests to assess the supply and information management systems for HIV test kits under the auspices of the Zambia Voluntary Counseling and Testing Service (ZVCTS).

Year 2

In 2001–2002, RPM Plus continued to build upon activities initiated in year 1. RPM Plus continued to promote formulary management, supported the NMCC in malarial treatment policy implementation, and provided pharmaceutical management support to Integrated Management for Childhood Illness (IMCI) and voluntary counseling and testing (VCT) programs. RPM Plus increased its efforts to improve logistics management, quantification of needs, costing of medicines and supplies, and rational medicines use.

RPM Plus assisted CBoH in developing the roles and functions of the National Drug Policy (NDP) Implementation Steering Committee, which would eventually help monitor policy

implementation. In addition, RPM Plus provided technical support to the NMCC through Zambia's Information, Education and Communication Working Group and its Malaria Case Management Working Group. By providing technical leadership in the development of appropriate supporting documents for DILSAT, RPM Plus furthered the review and strategic implementation of the tool. RPM Plus also participated in drafting modules on financing, budgeting, quantification, rational medicines use, and training methodologies for incorporating into DILSAT.

For the ZVCT Program, RPM Plus conducted a rapid assessment of the VCT services and commenced work with ZVCT and other stakeholders, including the VCT Technical Working Group and the Partnership Working Group, to develop the VCT commodities and information management system.

In Year 2, to promote rational use of medicines in Lusaka District, RPM Plus supported the Lusaka Urban District Health Management Team (LUDHMT) Drug and Therapeutics Committee (DTC) in conducting a medicines supply and use review, and introducing antimicrobial use strategies with the collaboration of the Alliance for the Prudent Use of Antibiotics (APUA).

Year 3

In 2002–2003, RPM Plus assisted ZVCT in systems diagnosis, development of interventions, capacity building of the staff, and information systems development. The process was based on consensus building involving stakeholders from the public and private sectors and nongovernmental organizations (NGOs). Starting from a modest initial 33 VCT sites, the process enabled ZVCT to open more than 200 sites across the country. RPM Plus assisted in the training of more than 350 health workers from the facility, district, and national levels in the new VCT commodity and information management system.

Because of the system's versatility and its capacity to provide evidence-based information for decision making, stakeholders involved in prevention of mother-to-child transmission (PMTCT) efforts became interested in using the system to improve PMTCT information management. Subsequently, RPM Plus assisted the CBoH in developing the integrated VCT/PMTCT commodity and information management system, which was launched in August 2004. The process enabled an information exchange between VCT and PMTCT managers and facilitated the integration of information and commodities management, particularly for HIV test kits.

RPM Plus assisted the MoH with making informed policy decisions by conducting two key assessments. When the MoH changed the national malaria treatment policy to advocate artemisinin-based combination therapy (ACT) over chloroquine, it also recommended sulfadoxine-pyrimethamine (SP) as an interim treatment until the new policy could be fully rolled out. To explore possible sociocultural obstacles to the new policy, RPM Plus conducted an SP use study to assess the receptiveness and attitudes of health workers and community members to SP. The findings were key in the development and dissemination of guidelines for malaria treatment for children and adults as well as for intermittent preventive treatment (IPT) for

pregnant women. In addition, the Community-level Drug Management for Childhood Illness (C-DMCI) assessment tool, which was in part developed and tested in Zambia, was adapted to focus solely on childhood malaria in Zambia. The findings provided evidence-based information to guide decision making for policy makers and health care managers.

In promoting the rational use of medicines, RPM Plus continued to work with the CBoH to develop the NDP Implementation Master Plan, indicators, and standard treatment guidelines (STGs). In collaboration with LUDHMT, RPM Plus hosted a Regional Conference on Drugs and Therapeutics Committees. Jointly with the Academy for Educational Development's (AED's) CHANGE Project, RPM Plus facilitated a preliminary country assessment on AMR.

In addition, RPM Plus was involved in the midterm review of Zambia's National Health Strategic Plan. The *Midterm Review Report* has become a blueprint for national planning as the sector redefines its organizational structures and implementation strategies for supply management of medicines and medical supplies.

Year 4

In 2003–2004, RPM Plus worked to address USAID Zambia's Strategic Objective 4, to "increase use of improved, effective, and sustainable response to reduce HIV transmission and mitigate the impact of the HIV/AIDS pandemic, malaria and antimicrobial resistance." RPM Plus focused on pharmaceutical management systems and research, technical leadership, and strategic documentation and transfer of experience. The workplan for Year 4 was formulated to improve the availability of medicines and medical commodities, rational use and information documentation, and information retrieval and appropriate use.

RPM Plus extended support to the CBoH in developing the NDP indicators and printing the National STGs and the Zambia National Formulary (ZNF). RPM Plus also supported the University of Zambia in the development and implementation of an apprenticeship program for pharmacy students to gain practical work experience and hence improve their chances of gaining employment after graduation.

RPM Plus continued to provide technical assistance to CBoH on PMTCT Implementation Plan (IP) activities to integrate the commodities information management tracking system into PMTCT services. Three hundred health workers from the public sector and defense forces were trained in the use of information management tools and in executing peer reviews for improved performance. RPM Plus also facilitated performance improvement supervisory trips and on-site training at PMTCT sites countrywide.

With the support of RPM Plus, health workers, researchers, policy makers, and cooperating partners attended a second national workshop on the rational use of medicines. A follow-up assessment of supply and rational medicines use interventions in Lusaka Urban District was also conducted.

Following President Bush's announcement of the President's Emergency Plan for AIDS Relief in the U.S. State of the Union address in January 2003, significant resources were released to RPM Plus to support the GRZ in pharmacy and laboratory capacity building, particularly for the management of pharmaceuticals and laboratory materials needed for antiretroviral therapy (ART) services. Continuing with an evidence-based approach, RPM Plus helped the CBoH develop a facility-based information and commodity management system (called the ART Dispensing Tool). Training in ART pharmacy and laboratory management and quantification for HIV/AIDS-related commodities was provided for staff. Standard operating procedures (SOPs) for pharmacy and laboratory services were also produced to support standardized, quality ART services.

Year 5

Year 5, 2004–2005, was devoted to completing all activities initiated in the previous four years. RPM Plus supported pharmacy and laboratory services for ART services. Training materials were developed and training programs were held for facility-based ART management and quantification. The ART Dispensing Tool was refined and improved to provide support to pharmacy services, particularly for stock management and patient care information. The VCT/PMTCT management tools were also improved and refined to collect, collate, and analyze VCT and PMTCT data as an integrated package. The tool was adopted in 69 of 72 districts in Zambia.

To improve on the central inventory control information system for pharmaceuticals and medical supplies, RPM Plus anticipates replacing the current INVEC II system with ORION@MSH software. The tool will be used for stock management, quantification, and procurement information management.

District Integrated Logistics Self-Assessment Tool

DILSAT is an indicator-based self-assessment tool for collecting and analyzing data on logistics management of essential medicines, contraceptives, vaccines, laboratory, and medical supplies, which enable district personnel make better-informed decisions for interventions and improvements in health service provision.

DILSAT offers health workers the means to—

- Improve logistics management
- Improve supply systems for essential medicines, contraceptives, vaccines, and laboratory and medical supplies
- Promote rational use of medicines and medical supplies
- Use the medicines budget more efficiently
- Plan and budget within health facility programs

Based on RPM project's indicators for rapid pharmaceutical sector assessment, DILSAT was developed collaboratively by CBoH, LUDHMT, RPM, the Family Planning Logistics Management project (FPLM) and Development Cooperation Ireland (DCI, formerly Ireland AID) in 1997. However, an implementation strategy was not determined until May 2000. The tool was developed in response to the CBoH directive of streamlining and integrating logistics management of commodities supplied under various vertical programs (essential medicines, contraceptives, vaccines, and laboratory supplies). RPM Plus, in collaboration with the Zambia Integrated Health Program (ZIHP) and John Snow Inc.'s (JSI's) DELIVER Project (formerly FPLM), supported the assessment of the rollout of DILSAT in six districts. RPM Plus participated in disseminating the assessment findings to key stakeholders.

The study findings and experiences found the activity at a crossroads. Some partners were no longer interested in supporting the rollout of DILSAT, but health workers demanded support for continuing the activity. They advised CBoH to scale up DILSAT use and introduce the tool to other health facilities countrywide. But another hurdle to implementing the tool was also apparent: the gap between health workers' knowledge and skills on the one hand and their attitudes and behaviors on the other. Although health workers had received training in the use of DILSAT, they were not consistent in applying what they had learned.

At the time, it was perceived that the training strategy used was inadequate to inspire health workers to voluntarily apply the tool. As a result, CBoH, ZIHP, and RPM Plus, with the support of the UK's Department for International Development (DFID) and JSI/UK, developed a curriculum to train health workers in self-assessment in use of the tool. The outcome of this joint consultancy was the Logistics Management Information Systems training materials.

CBoH, the ZIHP project, and DFID ensured support for nationwide training thereafter, but the use of DILSAT for self-empowerment has never been fully realized. RPM Plus believes that DILSAT has the potential to improve pharmaceutical management in the health care system. However, there is still resistance to the tool among many health care workers, and there is a lack of commitment to the effective application of DILSAT principles. The future of DILSAT lies with the leadership to inspire and build confidence in the health workers to explore new ideas and become self-motivated to achieve improved performance.

Alternative Supply System Assessment

In 1996, the MoH, in collaboration with donors and other partners in the health sector, engaged a consultant to review the capacity and operations of its central medical stores, Medical Stores Limited (MSL), including its management procedures. The consultant made wide-ranging recommendations, such as transforming the MSL into a public, autonomous, and independent essential medicines and medical supplies store. In 1998, however, the MoH and the Ministry of Finance, the two main shareholders of MSL, decided to contract out the management of MSL to a private company (GMR, a private, South African–based company, was selected).

Subsequently from 2000–2003, several consultants were engaged, at the request of the MoH and its cooperating partners, to assess developments in the health sector and the progress of health-sector reform. Where these assessments dealt with the pharmaceutical supply system, findings stressed that the MSL contract was not transparent in its setup and that accountability was poor. Medicines shortages were found and were worsening. In general, it was recommended that the MoH reconsider the contract and seek other options for the management of MSL. The final report of the Joint Health Appraisal Mission (JHAM) (May 2001), commissioned by various cooperating partners, suggested the establishment of an alternative storage-and-distribution system for all public health commodities using the Churches Health Association of Zambia (CHAZ).

Some cooperating partners, pledged to a sector-wide approach (SWAp), demanded the establishment of an alternative drug supply system (ADSS) before they would further finance procurement of medicines. This condition would apply until the GMR contract with MSL was replaced by a contract acceptable to the cooperating partners, in line with their joint responsibility for providing health care services.

In response to a request from MoH in August 2001, USAID funded an RPM Plus assessment of an ADSS using the CHAZ structure. The purpose of the study was to provide MoH and its cooperating partners with a well formulated and substantiated map for proceeding with establishing an ADSS, providing a means for the various stakeholders to reach consensus on the viability of an ADSS, which was seen as necessary in view of the growing shortages of essential medicines in the country. The assessment was conducted in November 2001.[1]

[1] Dik, J., V. Dias, O. Hazemba, et al. 2002. *Alternative Supply System for Health Commodities: Assessment Mission Report.* Published by Rational Pharmaceutical Plus Program for USAID.

Following the assessment, RPM Plus made a number of observations as well as arguments both for and against establishing an ADSS. To use CHAZ, two scenarios were presented: (1) to lease a suitable warehouse with trucks, or (2) to build a new warehouse and purchase a fleet of trucks. Both short- and long-term perspectives were provided with an implementation plan and cost analysis. Given the waning lifespan of the existing GMR contract, the assessment team made recommendations for increasing access to medicines and addressing governance and transparency issues. GRZ and cooperating partners were advised to procure medicines and store them in an alternate warehouse while concurrently beginning preparations for tendering out the MSL contract. Both recommendations were taken and implemented with success, although without the involvement of CHAZ.

GRZ and cooperating partners made informed decisions on the ADSS based on the assessment. DFID assisted in procuring much-needed medicines and medical supplies and stored them at Ngansa Pharmaceuticals Limited. In the meantime, the MoH engaged one member of the RPM Plus team to provide technical assistance with tendering out the MSL contract. A tender was developed and ultimately was won by Crown Agents.

MSL Assessment

Prior to the end of the contract in 2003, MoH requested that CBoH and partners conduct a rapid assessment of MSL's operations under the GMR management.

Objectives of the assessment were to—

1. Assess the quality and efficiency of storage techniques and procedures for transporting materials and equipment

2. Assess the quality and operational efficiency of (transferable) administrative equipment

3. Assess stock management and storage conditions

4. Assess the quality of transferable management tools used in the management of tasks

5. Assess the availability and quality of SOPs

The assessment showed that room temperature in the warehouse was not suitable for storage of pharmaceuticals, particularly injectables. GMR had abandoned the cold room that was used previously for storage of injectables. Because the contract was with MoH, there were terms of reference for the service delivery unit (i.e., CBoH) for management of commodities and client services. However, collaboration with CBoH was irregular and uncoordinated. And, although some progress had been made in the integration of storage management for pharmaceutical services, bringing some improvements in efficiency, an increase in the number of vertical programs, from 19 to 24 between 1998 and 2004, complicated the task. There was a general lack of SOPs *for* storage and inventory control for use by warehouse staff.

RPM Plus and partners made several recommendations in view of the assessment results—

1. Standard Operating Procedures manual should be developed and used.
2. Temperature controls should be improved, particularly for storage of injectables.
3. Collaboration of MSL and CBoH on information management of inventory and procurement pipelines should be improved.
4. Integration of supplies and materials, regardless of financing or source, should be pursued further to ensure equity of access.
5. Storage, inventory control, and distribution should be improved.

It is these recommendations that MoH/CBoH and MSL promoted under the Crown Agents management and that they are striving to implement in order to improve pharmaceutical management at MSL.

Technical Assistance to the Zambia National Formulary Committee

The ZNFC is responsible for advising MoH/CBoH on essential medicines and medical supplies for public health. It is scheduled to meet regularly to review the medicines that should be on the national Essential Medicines List (EML), based on efficacy, safety, quality, use, and cost. The committee also produces documents and facilitates training as part of its educational strategy on promoting the rational use of medicines. Documents such as the ZNF and the EML were published, and the second national Promoting Rational Drug Use (PRDU) workshop was held in 2004.

RPM Plus has facilitated operations of the ZNFC since 2001. It worked with committee members to develop materials for publication, reviewed literature for evidence-based information, and facilitated access to information to help the committee make informed decisions. As a result, RPM Plus facilitated the printing of the ZNF and the national STGs for management of conditions and diseases in Zambia. RPM Plus also facilitated a countrywide dissemination of the STGs for sustained adherence and use.

National Drug Policy Implementation Steering Committee

In 1994, Zambia started the process of developing a National Drug Policy with the support of the Swedish International Development Cooperation Agency (Sida). The NDP was completed in 1997 and was launched the following year. However, no implementation plan had been developed. RPM Plus worked with CBoH to establish an NDP Implementation Steering Committee to develop an implementation plan and monitor the process. Significant contributions from RPM Plus included linking NDP and key implementation issues, identifying key stakeholders, and developing indicators for monitoring. RPM Plus also facilitated and supported a number of meetings for the committee.

Although a final implementation plan has not yet been produced, RPM Plus played a significant role in reviving enthusiasm and effort within MoH/CBoH for a purposeful implementation strategy for the NDP.

Midterm Review

In 2000, the MoH developed a National Health Strategic Plan 2001–2005 to guide investment in the reforming sector based on the SWAp Framework. The Ministry planned to evaluate the implementation process of the plan during the implementation phase. This was intended to take inventory of what was being done, identify implementation impediments and use the generated evidence to retarget strategies and resources to accelerate the implementation process during the remaining half-term of the life of the strategic plan.

In 2003 RPM Plus was involved in the midterm review of the Zambia's National Health Strategic Plan. The *Midterm Review Report* has become a blueprint for national planning as the sector redefines its organizational structures and implementation strategies for supply management of medicines and medical supplies.

Technical Assistance in Procurement

USAID has not included procurement support in its strategic objectives for MoH/CBoH for many years. Nevertheless, because procurement is important in ensuring medicines supply and availability in the public health sector, USAID has funded technical assistance in the area of procurement.

Since 2001, RPM Plus has participated in the Procurement Technical Working Group and has provided technical assistance. RPM Plus has also been invited to participate in a number of consultancies that have supported MoH/CBoH on procurement issues.

In 2002, RPM Plus advised the USAID Zambia Mission on selection and quantification of medicines used for the treatment of sexually transmitted infections (STIs). Although the procurement process was never implemented, the USAID Mission was made aware of the technical implications involved.

In 2004, RPM Plus was part of a team funded by the Dutch government to review procurement and the development of the pharmaceutical supply budget line. The mission's main objective was to make recommendations to MoH/CBoH and partners on how to develop and operationalize the pharmaceutical supply fund. The recommendations made included—

- To establish a drug supply budget line task team
- To establish a list of essential medicines and medical supplies to be stocked at MSL
- To prepare a list of emergency medicines and medical supplies to be stocked at MSL
- To develop a three-year (medium-term) procurement plan and update the national pharmaceutical quantification procedures

Other cooperating partners have also requested technical assistance in procurement. For example, DFID requested that RPM Plus provide a peer review of the Zambia EML prior to flotation of the tender to manage MSL in 2003. In addition, RPM Plus provided technical assistance to CBoH staff on quantification, including application of ABC analysis and vital, essential, necessary (VEN) strategies, aiding in the public sector procurement of essential medicines for the following two years.

ORION@MSH at MSL

In 1997, MSL was seeking software to enhance its inventory management and warehousing systems. JSI's FPLM project, CalBro, and RPM were invited to demonstrate their tools and help management make an informed decision on which tool to adopt. Of the three presentations, RPM's INVEC 2 tool was selected as the most appropriate software program for MSL.

Around the time MSL announced that it was actively seeking upgrades to its current operations, MSH, through the Strategies for Enhancing Access to Medicines (SEAM) Program, funded by the Bill & Melinda Gates Foundation, had just finished pilot testing a new logistics management software suite, called ORION@MSH, which was created to replace INVEC-2. As part of the promotion of the new software suite, MSH's Center for Pharmaceutical Management made plans to install the software for free in all countries that had previously been using INVEC-2. In Zambia, the funds for this were routed through RPM Plus.

Shortly after completion of ORION@MSH's pilot testing phase, MSL's Board of Directors requested a demonstration of the tool. In November 2004, representatives from RPM Plus and the developing company, 3i Infotech, gave a presentation about the software followed by a live demonstration. The presentation was successfully executed, and it was planned to go ahead with a future installation of software, tentatively set for the March 2005 timeframe. This timeframe was intended to coincide with the completion of the warehouse upgrade. However, delays in both the completion of the warehouse upgrade as well as scheduling conflicts with other existing ORION@MSH sites delayed the beginning stages of ORION@MSH installation until mid-August 2005.

As of October 2005, about one-half of the pre-installation activities had been finalized, but progress with others had been put on hold due to discussion of other potential software packages to replace the warehousing module found in ORION@MSH. MSL had named CalBro's product Navision as one option as well as put together a request for quote (RFQ) for warehouse management software. At the time of the close out, 3i Infotech and MSH were scheduled to make a presentation to MSL's Board of Directors during the final week of November in a bid to win support for ORION@MSH.

ZVCTS Commodity and Information Management System

ZVCTS was started at the University Teaching Hospital in Lusaka in the late 1990s, with primary funding from the Norwegian Agency for Development Cooperation (NORAD). The objectives of ZVCTS are to manage implementation of VCT services, train adequate numbers of VCT staff, review and harmonize HIV testing protocols, streamline information systems, improve tracking of specimens sent for testing, and continue research activities with the University Teaching Hospital virology laboratory (funded by the Japan International Cooperating Agency [JICA]). Other activities include coordination with NGOs and community-based organizations (CBOs) that helped introduce VCT in Zambia and still play a major role in VCT service delivery.[2]

Since 1999, CBoH, with the assistance of NORAD and other cooperating partners, has established VCT services in more than 56 sites throughout the country. The majority of these sites have been integrated in the Maternal and Child Health/Family Planning (MCH/FP) programs in most public health institutions. Because of the continuing important role of the NGOs in HIV prevention, a few freestanding NGO-run VCT sites have been established. With this increasing demand, the need to strengthen capacity in data collection, analysis, and reporting became clear, and ZVCTS asked USAID to support the ZVCTS effort to develop an information system for the sites. In turn, USAID requested that RPM Plus formulate a project proposal and assist ZVCTS in collecting data from the sites.[3]

In 2002, USAID/Zambia requested RPM Plus's assistance with developing and implementing an information management tool for ZVCTS that would provide appropriate information for planning, supervising, monitoring, and modifying program activity.

Assessing VCT Services Commodity and Information Management Systems

In October 2002, RPM Plus conducted rapid assessments in 33 sites providing VCT services. The assessment questionnaire included a comprehensive site inventory to determine activities under way at each site; methods of client information collection, dissemination, and use; staffing levels and patterns; sourcing and management of commodities; appropriateness and adequacy of sites' infrastructure; effective network referrals; and client load.

The RPM Plus team investigated other factors affecting VCT services, including the sites' quantification of test kits and related supplies. Team members also consulted with site

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[2] Rational Pharmaceutical Management Plus. *Commodity Management in VCT Programs: A Planning Guide.* December 2002. H. Walkowiak and M. Gabra of Management Sciences for Health (MSH). In collaboration with E. van Praag, D. Boswell, G. Dallabetta, et al. of Family Health International (FHI). Arlington, VA: Management Sciences for Health.

[3] Hazemba, O. 2002. *Information Collection on VCT Activities in Zambia for Formulation of National VCT Data Information System: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

information development officers on approaches to developing and implementing an enhanced national VCT program.

The findings presented to the VCT Technical Working Group of the MoH and other partners are listed below—

1. Most VCT centers were owned by GRZ; 73 percent were integrated with other health services. However, integration did not occur at the management level even though VCT and other health services were being provided on common premises.

2. Physical facilities at the VCT centers were limited.

3. A uniform VCT information management system did not exist. Each supporting or implementing agency had its own proprietary system. Written SOPs/instructions did not exist for selecting data elements, filling in forms, preparing reports, analyzing data, or creating reports. Lack of integration of services reduced the quality of data recording.

4. The information systems were not user centered. Indicators did not exist to monitor the performance and effect of services. Information was not adequately used by all the centers for management purposes. Staff were not adequately trained on information management. Information management forms were not sufficiently available. Reporting was not timely and complete.

5. Test kits were undersupplied. In many cases, testing centers did not honor the prescribed algorithm because the supply of kits did not match the sequencing requirements of the algorithm. Sometimes, expired test kits were used.

6. Necessary historical information on the use of the test kits was not available and kit use data were not consolidated at one place thus making the quantification process very difficult.

Developing a New, Unified VCT Commodity and Information Management System

Postsurvey findings led to actions in collaboration with the VCT Technical Working Group and VCT partnership members. The Working Group and some partners worked with RPM Plus staff in a small group to identify a list of indicators appropriate for use in monitoring VCT services. The indicators developed were based on six categories—

- Policy, legislation, and regulation
- Service provision: counseling and testing
- Training
- Management information systems/M&E
- Inventory management
- Infrastructure and equipment[4]

[4] Bhattarai, H. R., O. Hazemba, and S. Thomas. 2002. *Trip Report: Zambia's Voluntary Counseling and Testing Services Management Information System*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Next, ZVCTS and RPM Plus developed a strategy to develop and implement a VCT commodity and information management system for the country. The small group presented the draft indicators to the VCT Technical Working Group and partners, who reviewed and approved them as the basis for creating VCT data collection formats and a system for national commodity and information management. RPM Plus continued work with the small group of partners to develop the tool, formats, and automated system. Report formats were designed, shared, and reviewed, and in the same way as the VCT indicators, and the formats were approved and adapted by the VCT Technical Working Groups

Piloting and Rolling Out the New VCT Commodity and Information Management System

ZVCTS, with support from RPM Plus, organized a workshop for sites that would pilot-test the system before the national rollout to all VCT sites. Staff from 12 sites under four District Health Management Teams (DHMTs) attended the workshop, held March 24–26, 2003. The workshop served to orient ZVCTS/DHMT/facility staff on the new ZVCTS system and procedures, and to train participants on the use of information in decision making.

The system was pilot-tested for one month, April 2003, in Livingstone, Kabwe, Ndola, and Mufulira districts. Results from pilot-testing were very encouraging, with DHMTs demanding that the system be rolled out countrywide. After minor fine-tuning of the automated system, a series of new workshops was held in May and June 2003 for District Health Information Officers (DHIOs) and Data Management Specialists (DMSs) in the pilot districts and sites, who were trained in the use of the database, installation of the system at their sites, and the use of information for decision making.

In September 2003, supportive supervision visits showed that the VCT commodity and information management system was becoming established in the pilot facilities. However, the amount of paper documentation had begun to overwhelm the busy sites and districts. To address this problem, RPM Plus developed a Microsoft Access–supported database for use by the district VCT coordinators and DHIOs that would decrease amount of paper created in the information management process in 2004. Within the same year the VCT commodity and information management information database system was installed in all districts countrywide. As part of the new system, all DHMT DHIOs handling VCT information were expected to transmit their returns to MoH by the end of the quarter for purposes of evaluation.

In October–November 2003, a series of follow-up supportive supervision visits was conducted across the country.[6] The visits were designed to ascertain whether—

1. All facilities had put in place measures to implement the system
2. All facilities had held meetings, sessions, briefings, or workshops to orient staff and implement the system
3. All facilities had implemented the system per schedule
4. All facilities were using the system efficiently

Activities conducted during the supervisory visits included recap sessions with facility staff on the use of data collection formats and charting concepts. Any problems and/or challenges identified at the facilities were resolved. Facility personnel generally appreciated the system, valued the data it yielded, and noted its usefulness. Lessons learned from the visits were used to make appropriate refinements to the system and improve its performance.

Lessons Learned: Strategy and Implementation

Establishing an inclusive process to facilitate coordination, communication, and collaboration among stakeholders was essential to strengthening VCT services in the country. It was important to include all stakeholders: GRZ, NGOs, CBOs, the private sector, UN agencies, and cooperating partners. A process based on partnership and collaboration has improved VCT services in the country through identification of key stakeholders, mapping their roles in providing supportive services, identifying gaps and duplication of services, building on stakeholders' strengths, identifying successes to build on, and identifying opportunities for harmonizing and streamlining roles and approaches.

The VCT commodity and information management system is a success story, made possible by USAID support to the GRZ to mitigate the impact of HIV/AIDS. It is now a national system, used in either manual or electronic format, in all districts to collect, collate, and analyze VCT activities in Zambia. The information generated from the system has been very helpful in understanding the performance and capacity of ZVCTS, which in turn supports informed decision making for programming and policy implementation.

Integrating PMTCT into the VCT Commodity and Information Management System

The success of the new ZVCTS commodity and information management system inspired stakeholders to develop an integrated VCT/PMTCT commodity and information management system. As good VCT data began to be collected and used, limited (if any) data were collected for PMTCT services at the same sites. The USAID Zambia Mission and CBoH requested that

[6] Derrick, M., B. Chembo, and C. Mulenga. 2003. *VCT MIS Supportive Supervision Routine*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

RPM Plus review the ZVCTS commodity and information management system and make recommendation for incorporating to PMTCT.

Assessing Zambia PMTCT Services Commodity and Information Management Systems

RPM Plus, in collaboration with CBoH, ZVCTS and LINKAGES/Zambia, embarked on an analysis of current PMTCT services in select sites in Lusaka Province, Central Province, and Southern Province in August 2003. A questionnaire was developed to survey six PMTCT sites of the 57 then operating in the country. These were selected on the basis of NGO/partner support, and included sites supported by LINKAGES, the Center for Infectious Disease Research in Zambia (CIDRZ), and the United Nations Children's Fund (UNICEF). Previously, ZVCTS, with support from RPM Plus, had already assessed 33 sites that offered VCT and/or PMTCT services. Therefore, it was concluded that it was unnecessary to conduct another extensive survey.

The survey questionnaire consisted of 52 questions and was structured in six sections: infrastructure, resources, data flow, general management, information systems, and stock management. Strengths, weaknesses, and limitations were identified, and recommendations were made to improve services, in view of planned integration of PMTCT with the new ZVCTS commodity and information management system. The responsibility of streamlining PMTCT practices and services was given to ZVCTS, with support from partners.

The assessment identified the following challenges to integrating the PMTCT and VCT systems—

1. Streamlining the various PMTCT systems. The assessment covered three PMTCT systems in place in Zambia. Although systems were similar in terms of data elements, routines, objectives, and indicators, the data tools used different formats. The challenge would be to integrate these formats in order to ensure that all information needs were met, especially those of CBoH.

2. Integration of PMTCT information into ZVCTS. VCT services are available in a number of health centers, and ZVCTS is expanding its number of sites. In many cases, the same staff that handle PMTCT services also handle VCT services. The assessment found that the staff was required to complete both VCT and PMTCT registers, and to complete two VCT activity report formats—one for PMTCT if the client came for PMTCT, and another for general VCT for the same client. This procedure resulted in added work for the staff.

3. Standardization of PMTCT operations and ethics. Because PMTCT is a national program, it was clearly desirable to have PMTCT operations standardized. For example, staff being transferred to other sites and mothers moving from one antenatal clinic (ANC) system to another should not have to adapt to a different system.

4. Standardization of the client coding system used for the ANC card/book for the PMTCT/VCT activity.

5. Determination of the appropriate number of counseling sessions per client, given the number of women to be counseled.

6. Harmonization of PMTCT data collection formats with DHMT ANC and outpatient department (OPD) registers.

Based on assessment findings, observations, and interactions with stakeholders, RPM Plus recommended the following steps for moving forward—

1. Analyze current CBoH and USAID core indicators for PMTCT.
2. Declare data sources for PMTCT indicators, means of calculation, standards, and use.
3. Incorporate ZVCTS indicators into the PMTCT program.
4. Identify indicators for which data were already being collected in the new ZVCTS system.
5. Develop integrated indicators for both VCT and PMTCT services.
6. Segregate PMTCT indicators into periodic indicators, i.e, monthly, quarterly and yearly.
7. Review existing formats in use and analyze data sources.
8. Initiate harmonization of data collection formats, including DHMT ANC cards/books, to reduce duplication in data collection.
9. Standardize and integrate VCT/PMTCT formats for data collection, collation, analysis, and reporting into the national ZVCTS information management system.
10. Develop an integrated automated/computerized VCT/PMTCT system.
11. Integrate PMTCT into the ZVCTS planning framework.
12. Revise and expand the existing ZVCTS user and procedures manual to include PMTCT.
13. As with VCT, strengthen DHMT VCT/PMTCT information management involvement and participation by making use of focal persons for HIV/AIDS/PMTCT/VCT, as well as DHIOs. DHIOs should be the final repository of district PMTCT information, as with VCT. At the provincial level, a DMS should also be available, for easy flow of information from districts, in particular, from DHIOs.
14. Ensure that ZVCTS inspects new and existing PMTCT sites so that laboratory facilities and testing protocols are as per desired standards.
15. Set up a smaller group representing CBoH, ZVCTS, and all other stakeholders to manage the integration process.[5]

[5] Muneene, D., C. Mumbi, and F. Munkonze. 2003. *Assessment of the Zambia Prevention of Mother-to-Child Transmission of HIV*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Designing the New VCT/PMTCT Commodity and Information System

The assessment results and recommendations were presented to VCT/PMTCT stakeholders and used to design an integrated system. Stakeholders presented indicators that they were using to monitor the PMTCT program; key among these stakeholders were USAID, the World Health Organization (WHO), the AED/LINKAGES project, and CBoH. A team was set up to review the indicators and create a consolidated list to be used for developing formats and tools for the integrated system.

After extensive discussions with stakeholders, RPM Plus in collaboration with CBoH and partners developed VCT/PMTCT registers and formats for the manual system to capture and maintain a record of clients served. RPM Plus supported the printing of the registers and forms and had them distributed countrywide. In addition, RPM Plus reviewed the automated VCT commodity and information management system tool to incorporate the PMTCT data elements and reports. The revised system was used to train facility-, district-, and provincial-level officers and managers across Zambia.

Rolling Out the Integrated VCT/PMTCT Commodity and Information Management System

In March 2005, RPM Plus, together with the Zambia Prevention, Care, and Treatment Partnership (ZPCT), ZVCTS, and PMTCT program officers from CBoH, held a training course on the new national VCT/PMTCT commodity and information management system in Ndola. Both manual and automated formats and tools were presented during the course.

The main objectives of this workshop series were to—

- Give DMS and DHIOs an overview of VCT and PMTCT programs
- Introduce the VCT/PMTCT registers and revised maternal health data collection forms
- Train DMS and DHIOs on the integrated VCT/PMTCT database software

The highly participatory workshop featured a practical, hands-on approach whenever possible. Participants had an opportunity to work on both the manual and automated systems, using their own facilities' data. They learned about the new VCT/PMTCT information system, new and preexisting data tools, and the database software. After the workshop, participants all went home with the new tools as well as a CD-ROM containing the software for electronic system for use at their home sites.

Participants attending the workshop were drawn from various organizations—

1. DMS from 7 provincial health offices

2. Data managers from cooperating partners (CIDRZ, ZPCT, Health Systems and Services Strengthening Program [HSSP], and the U.S. Centers for Disease Control and Prevention [CDC])

3. District Health Information Officers (68)

4. Health Management Information Systems (HMIS) Unit from CBoH [6]

In June and July 2005, RPM Plus, in collaboration with the CBoH's Integrated Reproductive Health Unit and ZVCTS, made supportive supervision visits to select health facilities in all districts nationwide. The team visited the DHIOs responsible for aggregating and analyzing data for planning, policy formulation, and M&E in each district. The primary objectives of the visit were to—

- Visit select VCT/PMTCT centers in the province
- Assess the use of both manual and automated data collection tools
- Make and record observations
- Assess stock availability and adherence to the testing algorithm
- Make recommendations for further interventions[7]

The assessment team found uneven, inconsistent use of VCT/PMTCT registers and formats at all visited sites. Some sites did not have registers and formats readily available; these materials were immediately provided by the visiting team. Most sites and districts, however, did have materials but were not completing and sending their reports in time; these sites were encouraged to complete the formats and submit their reports regularly. Most sites had adequate numbers of test kits. Those that did not have the kits were given new kits on-site.

The DHIOs were using the automated tools to collect, collate, and analyze data from the sites. Where there were some weaknesses in these processes, supportive supervision was provided on-site.

However, it was noted that most facilities had not taken full ownership of the VCT/PMTCT commodity and information management system and so were not deriving the system's benefits. Most districts reported a shortage of VCT/PMTCT staff, and the few staff available often lacked motivation. On the other hand, data management for VCT/PMTCT and ART was generally good. Where there were no standardized national tools, staff regularly improvised a method for capturing client information**.**

Overall, two major hindrances were observed—

- Apart from PMTCT coordinators, most DHMT members were not well-versed in the VCT/PMTCT commodity and information management system, and so found it difficult to provide supportive supervision.

- Most DHIOs did not handle PMTCT data; rather, it was compiled and reported by PMTCT coordinators, most of whom were based outside of the facility.

[6] Chitambala, C. 2005 *Report on the National VCT-PMTCT Training Workshop to Provide Hands-On Orientation to Revised VCT-PMTCT Information System to Provincial Data Management Specialists and District Health Information Officers. Ndola, Zambia 14–29, March 2005*. Management Sciences for Health/Zambia Prevention, Care and Treatment (ZPCT) Project.
[7] Mulenga, C., C. Chitambala, E. Chinkwanda, et al. 2005. *Trip Report on VCT/PMTCT Field Supportive Supervision*.

DHMTs should be encouraged to take full responsibility for provision of VCT/PMTCT services in the districts and support to the sites. NGOs and CBOs should be encouraged to initiate VCT/PMTCT services in the districts and communities.

Staff attrition threatens the quality of service provision and must be addressed. Staff need additional motivation to fulfill their responsibilities and stay committed to the commodity and information management system. Engaging lay counselors would help ease the workload on the few staff.

Training of counselors for HIV rapid testing services should be stepped up to promote the principle of same-day service and support the establishment more sites in rural areas. It was recommended that all current service providers be oriented on the new CBoH data collection tools by the DHMTs. In addition, trainings should include a data person to orient trainees on data management. All the MCH coordinators should be updated regularly in the principles of Safe Motherhood/PMTCT.

VCT/PMTCT coordinators should share the information with DHIOs and hold quarterly data review meetings, to be organized by local DHMTs. The district management should be oriented in PMTCT and other HIV/AIDS programs so that they can offer technical support to service providers.

Despite the constraints noted, the rollout of the VCT/PMTCT commodity and information management system is improving the provinces, and some staff are keen to use the standardized national data management tools. The improved, refined, and integrated VCT/PMTCT tools are being used to collect, collate, and analyze VCT and PMTCT data in 69 of 72 districts in Zambia.

Technical Support Training Workshop for CBoH DMS and ZPCT M&E Officers

A one-day meeting was held October 1, 2005, at RPM Plus offices in Lusaka with the objective of building capacity for sustained technical support at the local level for the VCT/PMTCT data management system and the Antiretroviral (ARV) Dispensing Tool beyond the closeout of RPM Plus–USAID Zambia Mission field funding. Fifteen participants attended the meeting.

The training was designed to ensure that participants acquired the skills and knowledge in the following areas—

1. Importing old VCT data into the new, integrated VCT/PMTCT database
2. Backing up and restoring data
3. Basic hardware troubleshooting
4. Troubleshooting software (both operating system and application software)
5. Data use, validity, timeliness, and quality
6. Data security in general

Participants also shared their experiences with the VCT/PMTCT database and the ARV Dispensing Tool and lessons learned from the last supportive supervision visits, held in May–July 2005.

The following training outcomes were expected—

- DMS were to carry out the importation of old VCT data into the new, integrated VCT/PMTCT database in all 69 districts currently using the new database, and to report back on their work by the third week of October 2005.
- RPM Plus/ZPCT were to investigate and address reported negative values in the automatic validation component of the VCT/PMTCT database.
- DMS were to ensure regular backup of data.
- RPM Plus/ZPCT were to add a feature to the VCT/PMTCT database to allow electronic data/reports export and import.

DMS were to continue providing technical support during the routine quarterly supportive supervision trips to their various districts. Major hardware repairs and servicing were to be subcontracted to reputable organizations/individuals by the facilities.

Lessons Learned: Strategy and Implementation

As a result of this intervention, Zambia now has an integrated system for VCT/PMTCT commodity and information management that collects, collates, and analyzes data on gender, age, reasons for seeking services, sero status of mother and child, and other information essential for program and policy decision making.[8]

Donated Equipment and Upgrades

In August 2003, to support the implementation of the VCT commodity and information management system, RPM Plus procured and provided a computer and its accessories for ZVCTS.

[8] ZVCT. 2003. VCT Commodity and Information Management system.

PHARMACEUTICAL MANAGEMENT FOR ANTIRETROVIRAL THERAPY

In November 2003, CBoH made a request to RPM Plus to build capacity of pharmaceutical and laboratory supply management in Zambia for ART services. This was in recognition of increased demand for quality services with the increased funding for ART flowing from multilateral and bilateral partners, including WHO's 3 by 5 initiative; the World Bank's Multi-country HIV/AIDS Program (MAP); the Global Fund to Fight AIDS, Tuberculosis and Malaria; and the President's Emergency Plan for AIDS Relief.

On December 12, 2003, the USAID Zambia Mission requested that RPM Plus design a one-year program that realistically could be established and produce tangible results to support the GRZ's effort to mitigate the effects of HIV/AIDS.

In response to these two requests, RPM Plus developed a proposal with the following objectives—

- To strengthen pharmaceutical services in support of comprehensive ART services at 10 general and central hospitals
- To strengthen laboratory services in support of comprehensive ART services at the same sites above
- To provide technical assistance in the strengthening of comprehensive ART services at the 10 ART sites supported by JHPIEGO

Assessing Site Capacity

To effectively implement the needed technical support to ART sites, RPM Plus, in collaboration with CBoH, made plans to conduct a rapid assessment of site preparedness/capacity. The objective of the assessment was to ascertain the existing functional pharmaceutical and laboratory services related to ART/PMTCT/VCT services. It was expected that the assessment would provide the basis for a program to address the gaps identified.

RPM Plus, in collaboration with CBoH, developed an assessment tool to assess the capacity and availability of the following elements at ART sites—

- Policies, regulations, and SOPs
- Human resources
- Infrastructure (equipment and fixtures)
- ART commodities
- Pharmacy and laboratory practices
- Information management systems (forms/formats, record keeping, and reporting)
- M&E systems, including quality assurance
- Other Related ART services
- Financing and sustainability

The assessment was conducted in March 2004 at 10 sites, (Chipata, Kabwe, Kasama, Lewanika, Livingstone, Mansa and Solwezi General Hospitals, Kitwe and Ndola Central Hospitals and University Teaching Hospital), all provincial or third-level referral hospitals, to ascertain the pharmaceutical management and laboratory service needs and the extent of site readiness for introduction of ART.

Assessment results indicated that the sites' capacity varied extensively, from infrastructure to operations. Although laboratories generally had adequate reference materials, the pharmacies had scant availability of policies, regulations, or SOPs. There was an inadequate number of pharmacy and laboratory staff to provide ART services. The infrastructure at most sites was not suitably designed for pharmacy services, particularly ARV medication counseling. Temperature settings were variably controlled, with no monitoring of temperature, and medication counseling was being provided in the pharmacy bulk storerooms or pharmacists' offices. The level of information provided to patients in these sessions was variable. It was particularly poor where pharmacy personnel were not involved (Mansa and Kabwe).

Existing information systems were weak and not standardized. Except for Ndola, none of the sites had automated systems for inventory management. Inventory control systems were in place but in need of strengthening. Reporting and M&E systems were very weak and needed standardization and strengthening. Most sites had adequate stock of ARVs, and some sites even had excess stock in danger of expiry. However, the selection and quantification processes were not well defined. Counseling and information documentation on patient profiles was limited in most sites.

The laboratory materials supply system needed strengthening. Quality control and adherence to the testing algorithm, SOPs, and regulations needed to be supported. Most key equipment was either not available or in the process of being procured though support from JICA, UNICEF, the Zambia National Response to HIV/AIDS Project (ZANARA), and DCI.[9]

To address the problems identified in the assessment, RPM Plus provided technical support to CBoH in putting together a multidimensional and site-specific approach encompassing a number of interventions.

Training Materials in ART Commodity Management

RPM Plus, in partnership with Family Health International's Implementing AIDS Prevention and Care Project (FHI/IMPACT) and the Population Council, has been providing technical assistance to the Mombassa ART initiative since early 2001.[10] The program has developed a strong set of best practices adaptable to other settings. RPM Plus reviewed and adapted the Mombasa ART

[9] Hazemba, O. 2004. *Antiretroviral Therapy (ART) Site Capacity Assessment Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

[10] Hazemba O., and G. Bryan. 2004. *ART Pharmaceutical and Laboratory Services Workshop: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

initiative materials and procedures as a basis for establishing comprehensive ART services in the nine ART sites in Zambia.

ART Pharmacy and Laboratory Supply Management Package and Training

RPM Plus developed the Zambia ART Pharmacy and Laboratory Supply Management Training package, which serves as a resource for trainers to use in training pharmacy and laboratory staff for ART programs in Zambia. The training materials for pharmacy and laboratory staff are complementary and can be concurrently administered with a clinical ART training package that was developed by CBoH.

The training materials were designed to increase the capacity of pharmacy and laboratory staff providing ART services, and can be used to support the model recommended by WHO's 3 by 5 strategy for the delivery of care administered by health workers at level 2 and level 3 hospitals. The training focuses on effective pharmaceutical management (selection, quantification, distribution, use, management support, and legal framework) to support ART programs and laboratory services. It also provides modeling of attitudes for patient care as well as diagnostic skills.

Using the Pharmaceutical and Laboratory Management for ART Services materials, RPM Plus organized two workshops—

- In August 2004, 24 pharmacy and laboratory personnel from ten hospitals providing ART Services attended a workshop, with support from RPM Plus.[11]

- In April 2005, 46 pharmacy and laboratory personnel from hospitals providing ART Services attended a workshop, with support from RPM Plus and ZPCT.[12]

ARV Quantification Training

To develop capacity in ART commodity quantification, RPM Plus assisted in the design and development of training materials for the quantification of HIV/AIDS commodities. RPM Plus organized and facilitated the trainings and sponsored the attendance of participants. Workshops for facility-based as well as national-level quantification of HIV/AIDS commodities were held.

Facility-Based ARV Quantification

The Training in Quantification for HIV/AIDS-Related Commodities training package was used as a resource by trainers in training pharmacy staff in quantification of ARVs, test kits, and medicines for the prevention and treatment of opportunistic infections (OIs). The materials were developed by RPM Plus and CBoH staff. They can be used concurrently with to the

[11] Hazemba O., and G. Bryan. 2004. *ART Pharmaceutical and Laboratory Services Workshop: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health

[12] Hazemba O., and G. Bryan. 2005. *ART Pharmaceutical and Laboratory Services Workshop 2: Trip Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Pharmaceutical and Laboratory Supply Management training package to provide detail in quantifying of needs.

The Training in Quantification for HIV/AIDS-Related Commodities training package is designed to develop knowledge and skills, and to mold attitudes toward estimation of HIV/AIDS-related commodities. The training manual includes 12 sessions for participants and a CD-ROM as additional resource for trainers. Each session presents key issues facing facility-based pharmacy staff today, as well as practical advice on applying their competence to improve quantification of HIV/AIDS-related commodities. Training sessions include—

- Session 1: Course Introduction and Overview
- Session 2: Basic Concepts of Antiretroviral Therapy for Quantifications
- Session 3: Quantification Methods and Exercises
- Session 4: Issues in Quantifying Needs of ARVs, Rapid Test Kits, and OI Medicines
- Session 5: Quantifying Antiretroviral Needs for Children
- Session 6: Data Collection for ART Quantification
- Session 7: Assumption and Decision Making: The Art of Quantification
- Session 8: Quantification Workbook Exercise
- Session 9: Quantification Workbook for Facilities
- Session 10: Quantifying Needs to Prevent and Treat Opportunistic Infections and for Palliative Care
- Session 11: Quantifying for National ART Programs
- Session 12: Introduction to Quantimed[13]

The accompanying CD-ROM for trainers includes the entire training package, as well as a workbook featuring Microsoft Excel work sheets that can be used for quantification of HIV/AIDS-related commodities.

In April 2005, RPM Plus assisted with training in facility-based quantification of HIV/AIDS-related commodities in Ndola. Twenty-eight pharmacy personnel from provincial health offices,

[13] Management Sciences for Health. 2005. *Quantimed Pharmaceutical Quantification and Cost Estimation Tool: User's Guide.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

level 2 and level 3 hospitals, district hospitals, and DHMTs already providing or targeted to begin providing ART services attended a five-day workshop.[14]

National-Level ARV Quantification

In July 2005, RPM Plus sponsored two CBoH pharmacy specialists' attendance of a four-day training course designed and facilitated by RPM Plus in Windhoek, Namibia, Improving the Quantification of ARVs. Structured to provide practical training in quantification of ARVs, the workshop targeted individuals responsible for quantifying ARVs for national HIV/AIDS programs in eight countries.

Workshop sessions focused on methodologies of quantification in addition to the key considerations and assumptions in quantifying ARVs. Participants were also introduced to Quantimed, an electronic tool developed by RPM Plus to assist in the quantification of ARVs.[15]

Quantimed is designed to facilitate the process of determining the quantities of medicines and supplies required for a health program and to assist in planning and budgeting. Quantimed allows health planners and directors of essential medicines programs to calculate needs by making adjustments based on historical consumption patterns or by taking an epidemiological approach based on patient service/morbidity profiles and STGs. The tool also features an option for scaling up morbidity-based estimates for growing programs.

Quantimed is a powerful tool that can be used to address essential medicines management in areas of order planning, training, and inventory management. Through its reports feature, it also enables analysis of the financial ramifications of purchasing and medicine use patterns. Policy makers can use the tool calculate the budgetary consequences of either individual medication purchases or medications purchases by therapeutic class.

Participants appreciated the training in improving the quantification of ARVs and in using the Quantimed tool. On returning home, they went on to train their colleagues and stakeholders in the use of Quantimed. In the process, they used the tool for their respective national quantifications of ARVs for 2006 to be supported by the Global Fund, the President's Emergency Plan, and other stakeholders.

Development and Distribution of Standard Operating Procedures

The site preparedness assessment found that sites lacked a clear policy and legal framework for commodity access, patient care, and performance monitoring. The biggest gap was a lack of patient-centered records, a problem that greatly affects clinical pharmacy and diagnostic

[14] Hazemba, O., and M. Mumbi. 2005. *Training in Facility-Based Quantification for HIV/AIDS Commodities: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

[15] McCollum, J., L. Akhlaghi, H. Walkowiak, et al. 2005. *Improving Quantification of ARVs Workshop, Windhoek, Namibia July 19–22 2005: Trip Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

practices. Pharmacists' involvement in the management of chronic care was also found to be quite limited.

To address these problems, RPM Plus, in collaboration with CBoH, developed SOPs to enhance the quality of pharmacy and laboratory services, the rational use of HIV/AIDS-related commodities, and patient care.

A team of experts was deployed in six sites (Kasama and Livingstone General Hospitals, Ndola and Kitwe Central Hospitals, Chingola Mine Hospital, and University Teaching Hospital in Lusaka) to observe and document day-to-day operations of the pharmacy and laboratory staff. They team developed flowcharts for each function carried out in the course of duty, identified forms and registers used for each step, collated information from sites and from the national level, and identified gaps. The team determined roles and responsibilities for the pharmacy and the laboratory in the national ART program, designed formats to fill the gaps, and reviewed the developed procedures with site staff and peers for suitability. The SOPs were tested, and feedback obtained was used to further fine-tune the procedures.

The Director General of CBoH officially launched the SOPs on August 12, 2005, at the Antimicrobial Resistance Stakeholders' "Call for Action" Meeting in Lusaka. He implored all hospital and district boards of health, collaborating agencies and stakeholders to ensure the use and appropriate adaptation of these pharmacy and laboratory SOPs at their sites. Six thousand pharmacy SOP manuals and two thousand laboratory SOP manuals were produced and distributed countrywide. The Director General urged DTCs and ART Committees to use the SOPs and adapt them to their areas of practice.[16]

Development and Installation of the ART Dispensing Tool

Zambia is one of the first sub-Saharan countries to implement public health–driven access to ART services, and has been a pioneer in creating and piloting tools to enhance these services. RPM Plus developed an ARV Dispensing Tool to meet the demands of an increasing number of patients, as well as to improve the quality of dispensing practices and strengthen accountability. Though initially developed in Zambia, the ARV Dispensing Tool is currently used in several countries where RPM Plus is working. The tool is a Microsoft Access–based computer tool that maintains a dispensing record for each patient receiving medicines from the dispensing pharmacy at an ART services site. It is primarily targeted for use by ARV dispensers for dispensing and stock management recording.

[16]Hazemba, O. 2005. *Launch of the Pharmacy and Laboratory Standard Operating Procedures Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Key features of the ARV Dispensing Tool include—

- Keeps a dispensing record for each patient
- Provides monthly consumption reports by medicine
- Provides reports on the number of new patients per month by regimen and medicine
- Provides reports on the total number of active patients per month by regimen and medicine
- Creates an attendance list and a list of patients who miss appointments

The tool was initially piloted in Zambia for six months at 13 facilities, all level 2 and level 3 hospitals where ART services were being provided. In March 2005, pilot users were invited to attend a workshop to exchange experiences and offer feedback for improving the tool.

After incorporating feedback from users and other stakeholders, a new, enhanced version (version 1.2) of the tool was released in May 2005. The new version was more user-friendly, with better data entry validation and control, serving to minimize instances of invalid, inconsistent, or incomplete data entering the system. Data integrity and reliability was thus strengthened. Version 1.2 also features additional reporting capabilities.

The new version was installed and trainings were held May 25–July 23, 2005, organized by RPM Plus and CBoH. Activities included the conversion of old databases and the installation of the tool in 16 hospitals throughout the country (1 university teaching hospital, 2 central hospitals, and 13 general, district, and other hospitals). Training in the use of the tool was provided for 52 pharmacy personnel and 9 data management and information specialists in the various facilities. The latter were trained to provide local technical support and promote sustainability beyond the life of the RPM Plus project in Zambia.

The tool was installed in three new ART sites and training was provided following the procurement of computers for the sites.[17]

Development of an ART Laboratory Tool for Inventory Control

Inventory control of laboratory reagents and materials remains a challenge for ART laboratory services in Zambia. Currently, it is impossible to account for the level of use of laboratory materials and supplies. RPM Plus has started work on measures and systems for determining the actual quantities, by volume or weight, of materials required for ART laboratory services and is developing a tool for this purpose. RPM Plus will continue to develop the tool beyond the USAID Zambia Mission field support funding.

[17] Muyunda, G. M. 2005. *ARV Dispensing Tool Upgrade Deployment, User Training, and Supportive Supervision for Pharmacy Staff, Zambia, May 25–July 23, 2005: Trip Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Development of a Biomedical Laboratory Safety Manual

Following the development of a National Medical Laboratory Policy, RPM Plus was asked to support the CBoH in achieving one of the key milestones of the implementation process, "Policy Objectives on Safety and Ethics." In July 2005, the process of developing a safety and ethics manual got under way, with the primary objective of codifying procedures for protecting the laboratory workers from accident hazards and risks associated with their work. The manual was designed to help laboratory workers to—

- Identify hazards in the workplace and assess risk to staff, patients, and others
- Promote and maintain safe practice
- Monitor adherence to health and safety regulations
- Report accidents informatively and investigate promptly

The *Zambia Biomedical Laboratory Safety Manual* was produced with the support of RPM Plus and will be launched and disseminated as a resource complementary to the laboratory SOPs manual.

Upgrading Facilities

RPM Plus equipped 17 facilities with an Americool 18,000 BTU heating and cooling midwall split air conditioner and a Dell Dimension computer system. Units were distributed to ART sites in September to November 2004 (Annex 5). RPM Plus also assisted in repairing the Dell computer at Mansa General Hospital and upgrading the Microsoft Office software suite.

RPM Plus also equipped a number of facilities with Cotech Electronic thermometer/hygrometers from October 2004 to January 2005 (Annex 5).

In addition, RPM Plus provided the following reference materials for ten ART sites—

1. *Managing Drug Supply,* 2nd edition
   Management Sciences for Health and World Health Organization. 1997. *Managing Drug Supply*. 2nd ed. West Hartford, CT: Kumarian Press.

2. *Medical Management of HIV Infection,* 2004 edition
   Bartlett, J. G., and J. E. Gallant. 2004. *Medical Management of HIV Infection*. Johns Hopkins AIDS Service. Baltimore, MD: Johns Hopkins University.

3. *Red Book: Pharmacy's Fundamental Reference,* 2004 edition
   Red Book: Pharmacy's Fundamental Reference. 2004. Montvale, NJ: Thomson PDR.

4. Zambia Standard Treatment Guidelines, 2004

To ensure sustainability of RPM Plus–supported improvements to the Zambian health sector, RPM Plus focused on transferring knowledge and skills to country counterparts. Elements of this strategy included ART supply management training for central- and health-facility level laboratory and pharmacy staff, as well as provision of materials and tools.

In addition, to support the IT tools provided, RPM Plus trained health information officers at the national and provincial levels, and in some districts. Collaboration with our partners, USAID, CDC, and others, in developing and strengthening systems helped bring onboard some the programs that have now been contracted by these partners to continue using and supporting the new tools. These programs include CIDRZ, Catholic Relief Services, and HSSP. Above all, RPM Plus has built capacity for and will continue supporting the ZPCT Partnership in the use of tools developed and implemented in their catchment areas.

Assessment of the Readiness of 11 Member Countries of the Commonwealth Regional Health Community Secretariat for Regional Pooled Procurement of HIV/AIDS-Related Medicines and Commodities in Sub-Saharan Africa

In March 2002, the Commonwealth Regional Health Community Secretariat (CRHCS) asked RPM Plus to explore the feasibility of carrying out pooled procurement for HIV/AIDS-related commodities for 11 of the 14 member countries of the Commonwealth Regional Health Community (CRHC). The remaining three southern African countries had expressed a preference to participate in bulk procurement through the Southern African Development Community (SADC) bloc.

The CRHCS was in the process of establishing a Regional Drug Forum (RDF), whose first priority was to identify ways of improving availability of medicines and medical supplies used in the care, treatment, and prevention of HIV/AIDS, in line with a mandate from the health ministers of the member states. The RDF was envisioned to become a body that would coordinate harmonization of national laws and regulations to enable pooled procurement.

In June 2002, RPM Plus administered a comprehensive questionnaire to assess the structure and functioning of public sector pharmaceutical selection, procurement, distribution, and rational use in 11 CRHC member states: Kenya, Lesotho, Malawi, Mauritius, Mozambique, the Seychelles, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

Intensive follow-up was conducted, including review of relevant documents and interviews with key personnel at the ministries of health. The experience of previously established multistate schemes was examined to determine the conditions necessary to support a collaboration mechanism for this group of countries. Data analysis was carried out using a key questions approach: Twenty-eight key questions were prioritized from the questionnaire as being critical to evaluating the favorability of conditions for CRHC countries to undertake any of four models of collaboration for procurement. These models—informed buying, coordinated informed buying, group contracting, and central contracting—range in their level of complexity and integration, with informed buying being the simplest and central contracting representing extensive integration.

The analysis concluded that almost all countries studied were ready to participate in some type of collaboration. It was recommended that the process of establishing a coordinated informed buying model of collaboration be initiated among these countries or a subset of countries, with a view toward providing a foundation for implementing other models of collaboration, ultimately leading to pooled procurement. Specific policies and procedures were identified that countries needed to introduce, clarify, or strengthen on a national level in order to participate in the more complex and integrated models of collaboration. Acknowledgment was also made of the considerable levels of commitment required on the part of member states, the regional body, and donors, including provision of technical assistance and funds for the setup and implementation of coordinated informed buying.[18]

[18]Onyango, C. 2003. *Readiness for Regional Pooled Procurement of HIV/AIDS-Related Drugs and Commodities in Sub-Saharan Africa: An Assessment of 11 Member Countries of the Commonwealth Regional Health Community Secretariat, 2002*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

MALARIA

Technical Assistance in Developing and Implementing Malaria Treatment Policy

In response to USAID strategic objectives on infectious disease, RPM Plus worked with the Zambiai NMCC to develop strategies on control, treatment, and prevention of malaria to meet national targets for reducing the cases of malaria, as well as those of the Abuja Declaration. RPM Plus provided technical assistance to develop and implement appropriate guidelines to replace the failing chloroquine with a more effective alternative drug, determined at the time to be SP. In addition, RPM Plus was requested to provide technical assistance to implement malaria treatment strategies for both the private and public sectors. RPM Plus worked with the NMCC and other stakeholders through Malaria Case Management and Research and Information, Education Communication Working Groups..

Study on the Acceptability of and Prescribing Practices of Health Workers and the Community of SP in Lusaka and Chipata Districts

In 2003, MoH/CBoH changed the first-line drug for malaria from chloroquine to an artemether+lumefantrine combination therapy. Until this new combination therapy could be procured and rolled out, MoH/CBoH announced that SP would be the interim first-line antimalarial.

However, the NMCC had limited information on health workers' and the community's knowledge and perceptions of SP. RPM Plus collaborated with CBoH and the ARCH project to conduct a study titled "Acceptability and Prescribing Practices of Health Workers and the Community on Sulfadoxine/Pyrimethamine (SP or Fansidar) in Lusaka and Chipata Districts" in February 2003.

The study was designed to yield a list of issues and concerns on the part of health workers and community members, which may hinder the use of SP. These issues would then be addressed through appropriate behavior change communication (BCC) interventions, including advocacy by policy makers; use of job aids for health workers and other providers; information, education and communication (IEC) materials; and mass media targeting the public.

The study covered Chipata District in Eastern Province and Lusaka District in Lusaka Province. In Lusaka District, Chawama, Chelstone, Chipata, and Matero health centers were assessed. In Chipata District, study sites included one urban clinic (Kapata) and five rural health centers (Chiparamba, Chipungu, Madzimoyo, Mkanda, and Msekera). To ensure thorough coverage, each site was divided into four sections using maps of the health center catchments. Two research tools were used to collect field data: personal interviews by survey and focus group discussions.

The study found that SP was not widely prescribed by health workers. Common factors that influenced health workers' prescribing practices for SP were—

- Limited knowledge about the drug in terms of dosage and when a repeat course could be given in cases of recurring cases of malaria
- Lack of information (such as an MoH circular) that SP was the first-line antimalarial
- Rumors about perceived negative side effects of SP
- Lack of IEC materials dispelling incorrect information and reinforcing accurate messages about SP

The study led RPM Plus to make the following recommendations to the NMCC, aimed at countering prevailing negative perceptions associated with SP in the study areas—

- Share information on chloroquine resistance with the health workers, in an easy-to-follow format such as reviewing mortality trends with the development of chloroquine resistance.
- Train health workers in the management of malaria and in providing correct information on antimalarial medicines.
- Develop and promote IEC materials for health workers and the community on malaria and the first-line treatment.
- Develop and implement appropriate BCC interventions for providers and the community
- Use mass media for disseminating information on malaria management and treatment with antimalarial medicines.
- Develop a pharmacovigilance system to monitor adverse drug reactions to SP and use the data to convince providers that side effects of SP are not as common as they fear.

Working with stakeholders, the NMCC and Zambia IEC Working Group developed radio, television, and print media messages to promote rational use of SP and counteract negative myths and beliefs about the drug. Currently, SP is the first-line antimalarial for treatment of children under 10 kg and for IPT. It is also used widely as an alternative to artemether + lumefrantrine in most health facilities. A follow-up study is needed to ascertain the level of acceptability of SP by the communities and health workers since implementation of the BCC campaign.

Public-Private Partnership for the Treatment of Malaria

Previous studies have found that a high percentage of patients and caretakers seek treatment for malaria through the private sector.[19] To support the new artemisin-based combination therapy (ACT) policy for malaria, RPM Plus developed a concept paper for increasing availability of artemether + lumefantrine (brand name Coartem) in the private sector through a private-public initiative. The paper proposed a partnership composed of the NMCC, RPM Plus, and the JSI program Society for Family Health (SFH). SFH was proposed to lead the contractual relationship with the private sector, with Coartem being purchased from Novartis through WHO at preestablished public sector funding.

A memorandum of understanding was drawn up and signed by the three partners in August 2004. Just as the project was to be initiated in two districts, Novartis moved to change the proposal and the project was suspended. Further discussion revealed that Novartis was not in agreement with the terms of sale, and would not provide Coartem at the negotiated public sector price. Rather, Novartis proposed the use of a commercially available 24-pack pack of Coartem adequate for a three day adult course to be sold at the wholesale price of 8 U.S. dollars (USD).

Currently, Coartem sells at USD 8–20 per 24-pack to the consumer in the retail outlets. Because the partnership believes that USD 8 per 24-pack is out of reach for most Zambians, the Novartis proposal would fail to improve availability of artemether + lumefantrine in Zambia private sector pharmacies unless the product were subsidized. Hence, the project has been stalled pending further guidance and discussion. RPM Plus maintains interest in the concept and remains engaged in dialogue with the partnership and with Novartis.

[19] Hazemba, O., A. Johnson, J. Briggs, et al. 2005. *Community Medicine Management for Childhood Malaria in Zambia, June 2003: Assessment Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

RATIONAL USE OF MEDICINES

LUDHMT Drug Supply and Use Review Surveys

The LUDHMT DTC has numerous responsibilities for improving rational use of medicines in support of quality health care services in its 24 health clinics. Its core role is to optimize rational use by evaluating the clinical use of medicines and addressing any problems found by developing policies for managing medicines use and administration. The DTC also has a responsibility for determining which medicines should be available and how they should be used.

To help it carry out these responsibilities, DTC members approached RPM Plus for technical assistance in designing strategies and interventions to improve medicines use by staff of the 24 LUDHMT health clinics.

RPM Plus advised the DTC to conduct a baseline survey on medicines use and supply management to determine current trends in use practices. Results from the survey would be used as a basis for strategies and interventions to be developed at a follow-up workshop in the district.

2002 Drug Supply and Use Review Survey

After a series of meetings, the DTC developed indicators to evaluate systems supporting medicines availability and use. These indicators were adapted from WHO and from RPM Plus's Rapid Pharmaceutical Management Assessment tool and *Drug Management of Childhood Illness* (DMCI) manual. With technical support from RPM Plus, the DTC contracted the University of Zambia Pharmacy and Medical Schools to collect data from sampled from the 24 health clinics administered by LUDHMT. The study was designed to answer the following questions—

1. Are the medicines needed to treat common conditions available in the health clinics?
2. What are the determinants of product availability?
3. How does the system perform in terms of product availability?
4. What are the current prescribing practices of the clinic staff?
5. What are the current antibiotic prescribing practices, particularly in the areas of IMCI and treatment of STIs?

The study, which collected data from 17 of the 24 LUDHMT clinics, found that essential medicines required to manage some common conditions were not available at all surveyed facilities. While some centers were well stocked, others reported of stock-outs of a range of essential medicines. The performance of the pharmaceutical supply management system was found to be weak. The prescribing practices of clinic staff were not satisfactory in a number of areas investigated. Very poor practices were observed in the use of antibiotics, particularly in the treatment of STIs and non-pneumonia conditions.

The study findings were disseminated and interventions proposed at the Drug Supply and Use Review Workshop, held in Kafue in April 2002. Lusaka District subsequently implemented the interventions proposed to address the problems observed in the study. The problems observed and the interventions used were as follows—

- Problem errors in entry on stock control cards (inadequate record keeping)
    - DTC directed the centers to ensure reduced accessibility to store rooms
    - Specified ordering times introduced (0800–0900 and 1400–1430 hours)
    - District DTC was directed to conduct site supportive supervision
    - Health Centers were supported to conduct exchange visits
- High rate of stock-outs in some centers
    - Trained health centre staff in logistics management systems
    - Procured new truck for delivery of medicines
    - Introduced emergency orders from the main store
    - Lobbied MSL to make deliveries in a timely manner
- Brand name prescribing
    - Integrated Treatment Guidelines were distributed to all centers
    - Supportive supervision activities included discussion on cost differences between brand and generic products
- High antibiotic prescribing
    - Fifty health center staff were trained in IMCI/STI protocols in 2004
    - Face-to-face intervention during supportive supervision on prescribing habits, particularly antibiotics
    - Two dissemination meetings on antibiotic policy and rational use with clinicians and dispensers were conducted

RPM Plus and the LUDHMT DTC planned for a follow-up survey in September 2004 to assess the impact of measures effected since the April 2002 workshop.

2004 Drug Supply and Use Review Survey

The 2004 study reviewed practices against indicators designed to assess the pharmaceutical management systems at the Lusaka Urban District clinics, and sought to answer the following questions—

1. Are the medicines needed to treat common conditions available in the health clinics?
2. What are the determinants of product availability?
3. How does the system perform in terms of product availability?
4. What are the current prescribing practices of the clinic staff?
5. What are the current antibiotic prescribing practices, particularly in the areas of IMCI and treatment of STIs?

While the initial study covered 12 sites, the follow-up study covered 17 sites of the 24 LUDHMT clinics. Each data collection group was assigned at least one large clinic and three other clinics. The data collection sites were chosen to represent a range of socioeconomic strata within the district. These included low-, medium-, and high-income communities.

Clinic performance on pharmaceutical supply management indicators was in general satisfactory. The majority of tracer medicines were in stock most of the time, and record keeping was satisfactory in most cases. However, some facilities performed quite poorly on pharmaceutical supply management, and remedial measures were recommended.

Most disappointing in regard to prescribing practices was the poor access to treatment guidelines of any kind. Most facilities and health workers did not have access to guidelines. Hence, prescribing practices for some diseases were inconsistent and unsatisfactory. There was improvement, however, in some prescribing practices since the first survey; for example, there was a significant drop in the percentage of prescriptions that included antibiotics, from 63 to 13 percent, between the two surveys. On the other hand, there was a drop in the number of prescriptions using generic names between the two surveys, from 50 to 31 percent. The number of medicines per prescription remained virtually unchanged from the first survey, at just over two.

The findings indicated a need for better dissemination of relevant guidelines and more effective methods for improving the performance of health workers in both pharmaceutical supply management and rational prescribing. It was also recommended as potentially useful to examine if those health workers who did have access to guidelines used them to guide prescribing practices.[20]

[20] Hazemba, O., M. Kasonde, and C. Mudondo. 2005. *Drug Supply and Use Review in Lusaka Urban District.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

In October 2005, the LUDHMT DTC met to review the study findings as well as the interventions implemented after the 2003 study, evaluating what worked and what did not. Further, the committee developed corrective interventions and an implementation strategy to address the 2004 study findings.

Local APUA Chapter

Following the 2003 LUDHMT workshop, representatives of the international group Alliance for the Prudent Use of Antibiotics (APUA) expressed interest in establishing a local APUA chapter. In response, a team of interested scientists formed an interim team to spearhead the local APUA chapter. On January 17, 2004, the chapter was launched under the leadership of Dr. James Mwansa, Consultant Microbiologist at the University Teaching Hospital in Lusaka. The team was later adopted as the executive committee to administer the operations of the chapter. The chapter has organized a number of meetings to promote awareness and prevention of the misuse of antibiotics. The chapter has also responded to invitations to make presentations on the subject to various forums.

Drug and Therapeutics Committees

In June 25–27, 2003, The RPM Plus Program in collaboration with the LUDHMT DTC, hosted a Regional DTC Training of Trainers (TOT) Workshop in Lusaka. Ten countries (Peru, Kenya, Tanzania, South Africa, India, Eritrea, Ghana, Moldova, Ethiopia, and Zambia) were represented at the workshop. Six Zambians from the ZNFC, Lusaka DHMT, CBoH, and CHAZ, were provided training to enable them to support DTC activities in the country.

RPM Plus also provided support for two Zambian public sector pharmacists to attend the DTC TOT Workshop held in Kampala, Uganda, in August 2004. Since this training, the two participants have developed and implemented activities planned at this regional meeting. They have also continued to champion the role of the DTCs in health care systems.

Promoting Rational Drug Use Courses

In 1998, MoH/CBoH, together with RPM, conducted a national Promoting Rational Drug Use (PRDU) training course to promote the rational use of medicines and medical supplies. The workshop was held in Siavonga. The workshop was a response to irrational use of medicines and pharmaceutical supply problems that had been neglected for many years, and which were documented in the Evelyn Hone College medicines use studies of 1997 (completed with support from RPM).

At the training workshop, five research papers were developed. CBoH and cooperating partners funded the implementation of these studies and were presented at the follow-on workshop in July 2004. The CBoH, the APUA Zambia chapter, RPM Plus, WHO/Regional Office for Africa (AFRO), and Sida conducted the follow-up national PRDU course in Siavonga. The training

provided continuity to the MoH/CBoH agenda of promoting rational use. The primary objective was for participants to increase their capacity to analyze medicines use practices and develop strategic interventions to promote rational use in their practice areas. Hence, the training strategy focused on interventional research methodologies to remedy the prioritized problems identified in the five research findings. The workshop was facilitated by CBoH in collaboration with RPM Plus, Mission Pharma, and WHO. Facilitators were drawn from RPM Plus, Mission Pharma, the APUA Zambia chapter, CBoH, and Zambia's Tropical Disease Research Center (TDRC).

Thirty-two participants from seven provinces attended the four-day course. Participants, who came from both the public and private sectors, were drawn from all levels of health care, from referral health centers to the central hospital level. Attendees included trainers from learning institutions for physicians, clinical officers and pharmacists, provincial pharmacists, representatives from the Pharmaceutical Society of Zambia, Chest Disease Laboratory and members of APUA Zambia.[21]

In addition, RPM Plus supported four pharmacy personnel to attend regional PRDU courses in Nairobi (February 1–14, 2004) and Windhoek (April 18–30, 2005). Participants reported having learned much, and were motivated to employ new strategies to strengthen the rational use of medicines in their practice areas.

INRUD Chapter at the University of Zambia, Department of Pharmacy

In 2003, RPM Plus organized and coordinated an exploratory meeting to establish an INRUD chapter at the University of Zambia, Department of Pharmacy. The Department of Pharmacy was proposed to take the responsibility to establish the chapter; however, these plans were not followed up. Even so, RPM Plus continued to work with the university and the Pharmaceutical Society of Zambia to establish a national internship and TOT program to promote the rational use of medicines. Four TOT courses have produced more than 20 trainers who provided tutoring at seven internship training sites.

[21] Hazemba, O., and P. Fulilwa. 2004. *The Second Zambia National Course on Promoting Rational Use of Drugs: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Country-Level Strategy for Advocacy and Containment of Antimicrobial Resistance

With funding from USAID, RPM Plus, in partnership with AED's CHANGE project, APUA, ARCH, and the Harvard Drug Policy Group, supports country-level strategies for education about and containment of AMR. The primary thrust of the country-level approach is to catalyze a response by local stakeholders to build and coordinate realistic strategies to contain AMR (Figure 1).

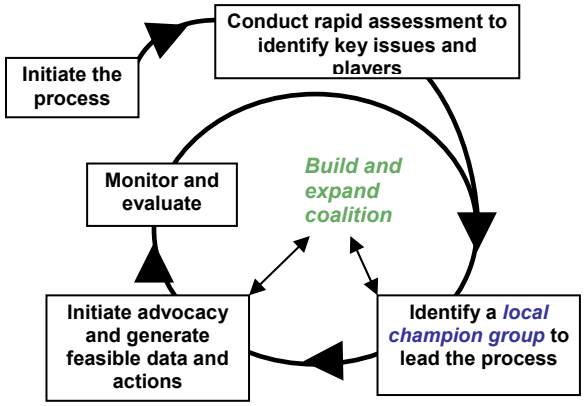

Figure 1. Elements of the country-level approach for AMR containment

Following an exploratory visit to Zambia in 2003, which demonstrated substantial interest among stakeholders in AMR issues, USAID supported the initiation of a national AMR approach in Zambia in March 2004.

Key Achievements

1. Establishment of a 10-member AMR advocacy working group (AWG)—
   - An independent body working on a voluntary basis, endorsed by CBoH
   - Includes wide representation from CBoH, the national drug regulatory authority, surveillance laboratories, academia, disease control programs, professional societies, NGOs, and the private sector
   - Meets biweekly; more regularly when preparing for implementation of an activity
2. Rapid assessment to understand the local context and issues that affect AMR
3. Appraisal of media presence/communication channels
4. Capacity building for developing advocacy and communications strategies

5. Development of a campaign theme for print and radio materials promoting appropriate use of antibiotics

6. Support for the activities of an APUA Zambia country chapter

7. Assessment of AMR- and antimicrobial use–related in-service training for health professionals

8. Staging of a successful AMR stakeholders' "Call for Action" meeting, November 2004—

   - 70 participants representing key stakeholder from all areas
   - Official opening by the Minister of Health demonstrating strong government commitment
   - STGs 2004 officially launched
   - Wide press coverage of the event and AMR issues
   - "Call for Action" document produced and disseminated to generate advocacy

9. Draft *Workbook for Building Local Support for Containing Drug Resistance* based on pilot country-level experience. Key contents of the workbook—

   - Guidelines for identifying and engaging stakeholders
   - Guidelines for advocacy and coalition building
   - Guidelines for developing information collection tools and analyzing collected data

10. AMR campaign theme with print and radio materials promoting rational medicines use

11. Wide coverage of AMR issues in national and local newspapers

12. Recommendations on revising and implementing STGs

13. Curriculum review addressing local AMR topics in preservice trainings[22]

Current Efforts and Lessons Learned

Key lessons learned from the current efforts in Zambia include the need to—

- Incorporate AMR as a "value-added" component to existing infectious disease program priorities rather than presenting it as a separate, competing activity

- Use advocacy as a central strategy, but ensure that it supports objectives rather than being an end in itself

- Emphasize the continuous nature of the AMR containment process

- Use terminology appropriate to the local context (e.g., use the terms *preserving drug effectiveness* and *drug resistance* rather than *antimicrobial resistance,* except among select audiences)

[22] Joshi, M., O. Hazemba, and N. Pollock. 2005. *Supporting Country-Level Strategies for Advocacy and Containment of Antimicrobial Resistance.* Power Point Presentation for 2005 SEAM Conference.

- Ensure that the local AWG includes respected and influential opinion leaders, clearly articulates program objectives from the outset, and plays the role of a catalyst rather than the "one-and-only action body"

The Zambia pilot approach shows that, with initial support and coordination, volunteer partners in resource-limited countries can organize themselves and expand their coalition to systematically address the problem of AMR. Guided by the lessons learned from Zambia, the approach is currently being implemented in a second country and will soon be finalized into a generic module that can be adapted and rolled out in other countries.

CHILD HEALTH

Dissemination of 1999 DMCI Survey Results

USAID has funded RPM and RPM Plus to provide technical assistance in pharmaceutical management to promote child survival. The initial RPM project, in collaboration with CBoH, conducted an assessment on the use of the Drug Management for Childhood Illness (DMCI) approach to support the IMCI strategy. The results of the assessment were disseminated by RPM Plus in 2001 at a WHO Regional Conference in Lusaka, Zambia

Field-Testing the C-DMCI Tool

In 2002, a manual providing guidance on how to assess Community-level Drug Management for Childhood Illness (C-DMCI) was developed by RPM Plus with support through USAID under its Strategic Objective 3, Africa Bureau (child survival and malaria), Asia and Near East Bureau, and Strategic Objective 5 (malaria). The manual was field-tested in two countries, Zambia and Senegal.[23]

In January 2002, a pilot study of the C-DMCI assessment tool was conducted in Lusaka and the Petauke Districts of Zambia. The lessons learned from the pilot were used to finalize the tool and help countries to assess their community practices in managing medicines for childhood illnesses.

Assessing the Use of the C-DMCI Tool for Evaluating Community Practices for Treating Children with Malaria

As a follow-up to the C-DMCI pilot study, RPM Plus, with Roll Back Malaria's Communication Working Group and Zambia's NMCC, discussed the possible application of the C-DMCI tool to assess the availability and use of medicines at the community level, particularly for children under five years of age.

Stakeholders requested that the assessment focus on childhood malaria and that lessons learned be extrapolated and used in efforts to manage adult malaria cases. A research team composed of staff from the NMCC, CBoH, and RPM Plus worked together to plan the assessment.

[23] Nachbar, N., J. Briggs, O. Aupont, et al. 2003. *Community Drug Management for Childhood Illness: Assessment Manual*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

The principal aims of the C-DMCI survey in Zambia were to—

1. Identify the strengths and weaknesses of community management of medicines for childhood malaria in the five districts surveyed

2. Orient the development of interventions and planning of activities for Community Integrated Management of Childhood Illness (C-IMCI) for malaria, as well as national medicines policies targeting childhood illnesses

RPM Plus coordinated the research process based on guidelines provided in the *C-DMCI* manual. RPM Plus also incorporated the logistics, background information, planning of meetings, training, recruitment of data collectors and supervisors, revision and production of the survey instruments, and supervision and quality control of the data collection process and analysis. Budgeting and contracts were also overseen by RPM Plus.

RPM Plus and the NMCC reviewed and adapted the materials in the *C-DMCI* manual for administration in the districts selected for the Zambia survey. The team used the available malaria treatment protocols to constitute the national standards of treatment. The Integrated Treatment Guidelines for frontline health workers and the draft treatment guidelines for Zambia were used as reference materials. The team also developed evaluation standards for each indicator provided in the manual.

The study was conducted in June 2003 in five districts, which were selected with the guidance of the NMCC. Data was collected on key indicators related to the key steps of appropriate drug management at the community level.

Information was collected from caregivers regarding—

- The timeliness of their care seeking
- The facilities that they used for care and purchase of medicines
- Medicines obtained, and how the caregivers used them

Information was collected from health care providers regarding—

- Prescribing or selling practices
- Availability and prices of medicines
- Most commonly sold or dispensed medicines for certain conditions
- Dispensing practices
- Procurement sources for their medicine supplies

A total of 189 health care providers and 1,875 caregivers participated in the survey. Provider/medicine outlet respondents were selected using a combination of purposive and random sampling. Caregivers were randomly sampled from eligible caregivers selected based on the criterion of having a child who had been sick within the last two weeks with symptoms of malaria (fever).

The assessment identified a number of strengths and weaknesses in community management of medicines for childhood malaria in the districts surveyed, in terms of availability of medicines and the practices of caregivers and provides.

Findings on availability indicated that—

- The availability of SP was good across all types of outlets in all the survey districts, but chloroquine was also still available in most outlets.
- Coartem was not available in all districts where the new ACT policy had been formally implemented, but it was found in districts where the Coartem policy had not yet been introduced.

Findings on caregivers' knowledge and behaviors indicated that—

- Caregivers recognized the seriousness of convulsions and took appropriate and timely action.
- Caregivers generally sought care outside the home for fever and did so in a timely manner, with the most frequent source of treatment being the government health facility.
- The timeliness of administering medicines was generally good, with the majority of patients taking SP given the medicine within two days; however, about one-third of caregivers still waited two or more days after onset of symptoms before administering SP.

Findings on providers' knowledge and behavior indicated that—

- Most providers knew that SP was the first-line treatment for malaria, although in the pilot districts for the Coartem policy some confusion about standard treatment remained.
- A number of providers reported having no training in malaria treatment guidelines, and about half of these were found in the pharmacies.
- Fifty percent of the children observed were treated with SP, and just under half were given chloroquine to treat malaria symptoms. Use of Coartem was low in the pilot districts, probably due to poor availability.
- Most providers seemed aware of the need to communicate certain medicine information to caregivers, although they did not practice accordingly; on observation, just under half gave verbal explanations to clients.

As a result of the findings, RPM Plus recommended—

- Better dissemination of treatment guidelines to providers, with accompanying training and supervision
- Use of appropriate job aids for health workers

- Development of SOPs, particularly for dispensing, for both private and public sector outlets
- Use of prepackaging to facilitate better of labeling of medicines
- Awareness raising in the community about the management of malaria
- Focus efforts on public sector facilities, because this is where most caregivers seek services
- Strengthen inventory management of antimalarials in public health clinics and take measures to improve Coartem availability in the private sector.

The identified weaknesses in medicine availability and use at the community level have been taken into account by the NMCC as it seeks to improve implementation of the new ACT policy. Recommendations will be used in orienting interventions in both the public and private sectors.[24]

[24] Hazemba, O., A. Johnson, J. Briggs, et al. 2002. *Community Drug Management for Childhood Malaria: Zambia Assessment*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

REPRODUCTIVE HEALTH

Assessing Commodity Needs for Integrated Reproductive Health in Zambia

To assess the reproductive health supply situation subsequent to implementation of the Integrated Reproductive Health Policies in 1998 and to assist the CBoH in leveraging donor funding and support, MoH/CBoH and the USAID Zambia Mission requested that RPM field-test the Cost Estimate Strategy (CES) tool. The CES tool, developed under the RPM project, supports planning, budgeting, and management for reproductive health commodities. It was field-tested in Kenya in 1998–1999, proving to be helpful in prioritizing the strategic needs of the Kenyan Reproductive Health Program.

In June 1999, following two weeks of training in CES methodologies and data collection in Zambia, RPM coordinated the CES assessment in 11 MoH and USAID priority districts. Funds to conduct this study were provided by USAID's Zambia Mission and its Regional Economic Development Services Office (REDSO). RPM and the CBoH coordinated the planning of the study.

Eleven districts were selected for the survey (Chibombo, Chipata, Kabwe, Kalomo, Kasama, Kitwe, Livingstone, Lundazi, Mwense, Ndola, and Samfya), which was designed to—

- Estimate total commodity requirements in 11 districts for providing essential reproductive health services
- Identify gaps in service[25]

Study findings were disseminated to all participating districts as well as other stakeholders. The districts were encouraged to use this evidence-based information in their action plans and in developing interventions.

USAID was also interested in the study findings, and used the information to develop partnerships with JICA to support the GRZ. RPM Plus was asked to extrapolate the study findings and prepare a list of requirements for procurement. The list was submitted to the USAID for continued discussions with JICA.

Collecting Baseline Data for the Prevention of Postpartum Hemorrhage Special Initiative

Postpartum hemorrhage (PPH) is the most significant cause of maternal death worldwide, accounting for half of all maternal deaths that occur after childbirth and 24 percent of maternal mortality overall, totaling approximately 130,000 maternal deaths every year. Half of the women

[25] Fujisaki, T., O. Hazemba, and M. Gabra. 2000. *DRAFT Assessment of Commodity Needs for Integrated Reproductive Health in Zambia. Ver. 7.* Submitted to the U.S. Agency for International Development. Arlington, VA: Management Sciences for Health/Rational Pharmaceutical Management.

who suffer from PPH have no risk factors, and 99 percent of women who die from PPH are in developing countries. Preventing PPH could significantly reduce maternal mortality and morbidity.

Most cases of PPH occur during the third stage of labor, after the baby has been delivered. Active management of the third stage of labor (AMTSL) has been identified by WHO and in several studies[26] as significantly reducing PPH. AMTSL has three main components: (1) administration of a uterotonic drug within one minute of birth of the newborn to induce a strong contraction; (2) controlled cord traction of the umbilical cord with countertraction to the uterus; and (3) massage of the uterine fundus through the abdomen. This procedure shortens the time it takes to deliver the placenta and leads to a decrease in uterine atony, thus decreasing PPH (uterine atony is associated with about 90 percent of PPH occurrence).

In September 2002, USAID requested assistance from several of its cooperating agencies, including RPM Plus, to support national efforts to improve maternal health through the agency's new Special Initiative to Reduce Postpartum Hemorrhage, to be piloted in Benin, Ethiopia, Mali, and Zambia.

In support of this initiative, an assessment was carried out in each of the four countries to determine the drug management issues, specific to oxytocics, which may affect service delivery of the identified intervention of AMTSL for the prevention of PPH.

In Zambia, a technical committee was convened to develop PPH prevention activities. Representatives from CBoH and the Department of Obstetrics and Gynecology at University Teaching Hospital in Lusaka, as well as JHPIEGO/Zambia's Country Director and PPH Program Manager all played a role on the technical committee.

The technical committee chose four districts for baseline data collection: Chipata, Lusaka Urban, Mufulira, and Ndola. Except for Chipata, districts were chosen because substantial work on AMTSL was already in progress in these areas.

The technical committee agreed to choose intervention sites based on three criteria—

- Maximizing the number of women who could be reached by intervention activities
- Encompassing a range of constituents (e.g., urban and rural, ethnically and economically diverse, range of education levels)
- Including sites acceptable to district-level representatives

Baseline data was collected at the district hospitals in the four chosen districts. In addition, a convenience sample of the nearby clinics was chosen—two in Chipata, five in Lusaka Urban,

[26] WHO. 2000. *Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors*; Prendiville, et al. 1988 *British Medical Journal* 297:1295–1300; Rogers et al. 1998. *Lancet* 351:693–699; and others.

and four each in Ndola and Mufulira. Thus, representation of both clinics and hospital, rural and urban services/practice was established.

The baseline assessment found that—

- Service providers were not practicing AMTSL regularly
- Those trained in AMTSL had more accurate knowledge of AMSTL than those who were not trained
- Activities to increase women's intention to have facility-based births, such as birth preparedness planning with a health provider, were not being carried out regularly
- Inadequate equipment and facilities
- Community health workers did not play a significant role in maternal and neonatal health issues
- The pharmaceutical management system was inadequate
- PPH-related information difficult to obtain as patient charts are commonly given to patients rather than maintained in the clinic

These findings implied that a performance and quality improvement approach was appropriate. Interventions that addressed both the system and the individual (health care provider and client) change was encouraged. RPM Plus recommended interventions targeting the following broad areas—

- Policy-related activities
- Site-strengthening activities
- Training: Community-level activities
- M&E activities

Assessment findings and recommendations were presented at a two-day strategic planning meeting for the Steering Committee in July 2004. The meeting included DHMT representatives, pharmacy representatives, hospital management teams (managers, direct managers, etc.), and provincial-level representatives, as well as key staff of CBoH.[27]

Assessing Service Quality and Pharmaceutical Management for STIs at Corridors of Hope Program Sites

In 2000, USAID established the Regional HIV/AIDS Program for Southern Africa (RHAP-SA), whose purpose was threefold: (1) to work with high-risk cross-border populations; (2) to support the development of national policies; and (3) to expand access to the information generated by

[27] Thomas, S., and O. Hazemba. 2003. *Preventing Postpartum Hemorrhage Special Initiative Baseline Assessment. Country Report: Zambia.* Submitted to the U.S. Agency for International Development Arlington, VA: Management Sciences for Health.

the project. The primary focus of RHAP-SA is the Corridors of Hope (COH) initiative, which seeks to promote practical regional collaboration in the prevention, control, and mitigation of the HIV/AIDS epidemic in southern Africa.

USAID/RHAP identified the management of STIs as a key component of its regional strategy to manage HIV/AIDS. Because the well-developed road corridors in southern Africa facilitate the migration and movement of millions of people across multiple borders, they also facilitate the spread and negative impact of HIV/AIDS and STIs. At the time of this report, eight countries (Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe) were participating in the COH initiative, with a total of 33 program sites.

The core activities of this initiative include STI prevention and treatment interventions, social marketing of condoms, and BCC. The following have been identified as key indicators of effective STI management as a component of this cross-border initiative—

- Constant availability of STI-related medicines and medical commodities in stock
- Ability of target populations to recognize symptoms and seek care
- Appropriate diagnosis and treatment of patients
- Peer educators trained on STI prevention and treatment

Previous research and anecdotal evidence indicated inconsistent availability of commodities among program sites. Medicines distribution to the sites was not under control of the COH project. In addition, it was unclear that the medicines procured for treating STIs were relevant to the epidemiological patterns found in these cross-border populations.

In 2003, USAID/RHAP-SA requested the assistance of RPM Plus to assess pharmaceutical management in the COH project, including availability and rational use of medicines, as a key component of overall quality of care in STI services.

The objectives of the assessment were to—

- Assess the availability and quality of STI services of referral clinics to appropriately manage STIs

- Assess the availability and use of pharmaceuticals and commodities used to treat STIs at COH sites

- Develop recommendations for improving implementation of STI management interventions, in particular with respect to the supply and management of medicines and commodities

The assessment was conducted in five countries: Lesotho, South Africa, Swaziland, Zambia, and Zimbabwe. Key findings for Zambia are included below.

1. Zambia has made a remarkable turnaround in the incidence of HIV and STIs, and there is evidence that increased public awareness is increasing demand for services.

2. The coming challenge is how to meet the demand for counseling and laboratory services, which are currently not offered at any of the centers surveyed. Providing these services will require additional trained personnel—already a scarce resource—and more clinical space.

3. Most sites were managing supplies satisfactorily. Medicines and commodities were generally available.

4. There is no way to determine compliance with recommended medicine regimens. It is possible that antibiotics (at 3.8 per encounter) are being overprescribed, making it important to institute efforts to contain AMR.[28]

[28] Lynders, M. 2004. *Assessment of Quality of Services and Pharmaceutical Management for Sexually Transmitted Infections at Health Facilities at Corridors of Hope Program Sites in Lesotho, South Africa, Swaziland, Zambia, and Zimbabwe*. Submitted to the U.S. Agency for International Development. Arlington, VA: Management Sciences for Health.

TUBERCULOSIS

In Zambia, more than 50,000 people suffer from tuberculosis (TB) each year. In 60–80 percent of cases, the disease is an opportunistic infection in persons who are immunocompromised due to HIV/AIDS.

Poor access to lifesaving medicines and basic laboratory services directly contribute to increased mortality, as does the use of improper treatment regimens where medicines are available. Limited access is often linked to a scarcity of resources and caused by ineffective pharmaceutical management and inappropriate financial priorities. Appropriate selection of medicines, coordinated quantification, good procurement practices, and sound inventory management all improve medicine availability, enhance the success rate of treatment regimens, and ensure sufficient stock to meet needs. Because of the high rate of TB/HIV co-infection, RPM Plus efforts to strengthen pharmaceutical management and services in ART programs benefits both categories of patients.

To mitigate the impact of TB, RPM Plus works with the public and private sectors and NGOs to develop combinations of technical and managerial approaches for achieving more appropriate, cost-effective use of commodities, which can result in increased supply and availability. RPM Plus also promotes wider access to better use of health commodities by working with policy makers, managers, and providers to strengthen commodity management systems.

RPM Plus provides technical expertise to WHO's Global TB Drug Facility (GDF) and its Green Light Committee for access to second-line anti-TB medicines. Through this relationship, RPM Plus has participated in two national GDF Review Missions, in 2003 and 2004, to review the TB program in Zambia, and has assisted in quantification of anti-TB medicines. As a result, Zambia has been receiving anti-TB medicines from the GDF to supplement its national requirements since 2003.

ANNEX 1. SUPPORTING ACTIVITIES

Board memberships/advisories/local meetings—

- Board Member, Medical Stores Limited, 2004–2005
- Board Member, Medical Council, Zambia, 2004–2005
- Board Member and Vice Chairman, Pharmaceutical Regulatory Authority, 2005
- Board Member and President of Pharmaceutical Society of Zambia 2002–2005

Regional meetings attended—

- ECSA Regional Pharmaceutical Forum (RPF) Meeting of the Technical Working Group on HIV/AIDS, October 6–7, 2004, Lusaka

- Roll Back Malaria, Uganda, April 2003 (with Malaria Action Coalition [MAC] funding)

International meetings attended—

- 2003 and 2004 Strategies for Enhancing Access to Medicines [SEAM] Conferences

- 2003 International Conference on HIV/AIDS and Sexually Transmitted Infections in Africa (ICASA)

- 2004 International Conference on Improving Use of Medicines (ICIUM)

ANNEX 2. SUPPORTED AGENCIES AND PARTNERS

Supported agencies—

- Center for Infectious Disease Research in Zambia (CIDRZ)
- Lusaka Urban District Health Management Team (LUDHMT)
- Zambia National Malaria Control Center (NMCC)
- Zambia Central Board of Health (CBoH)
- Zambia National AIDS Council
- Zambia Pharmacy and Poisons Board
- Zambia Voluntary Counseling and Testing Service (ZVCTS)
- University of Zambia Medical School, Pharmacy Department

Local partners—

- Churches Health Association of Zambia (CHAZ)
- Corpmed Medical Centre
- Health Communications Partnership (HCP)
- Health Systems and Services Strengthening Program (HSSP)
- Pharmaceutical Society of Zambia
- Society for Family Health (SFH)
- Zambia Integrated Health Programme (ZIHP)
- Zambia National AIDS Alliance
- Zambia Prevention Care and Treatment Partnership (ZPCT)
- Alliance for the Prudent Use of Antibiotics (APUA) Zambia chapter

International partners—

- Alliance for Prudent Use of Antibiotics (APUA)
- Applied Research on Child Health (ARCH) Project, Johns Hopkins University
- U.S. Centers for Disease Control and Prevention (CDC)
- CHANGE Project, Academy for Educational Development (AED)
- JHPIEGO
- LINKAGES, Academy for Educational Development (AED)

ANNEX 3. STAFF PROFILES

Oliver Hazemba serves as RPM Plus Regional Technical Adviser for Africa and Director of the RPM Plus Zambia office. He is a Zambian pharmacist with nearly 20 years of domestic and international experience. He has held senior pharmacy management positions in the Zambia MoH, served as the pharmacist-in-charge at several hospitals, and has served as Managing Director of MSL. He holds a bachelor's degree in Pharmacy and postgraduate diplomas in Medical Education, Effective Drug Management, and Rational Drug Use.

George M. Muyunda serves as RPM Plus Information Technology Consultant at the Zambia office. He has been involved with the review and deployment of the ARV Dispensing Tool in Zambia as well as user support and training. He has also participated in fine-tuning the VCT/PMTCT database tool. With more than 20 years of IT experience, he has held senior management positions with Zambia Railways Limited; the Pan African Institute for Development for East and Southern Africa, Kabwe; and Zambia and Computer Connections Limited, Lusaka. He holds a master's degree in Business Systems Analysis and Design. He also holds certificates in Project Management and Computer Programming.

Derrick J. Muneene worked as Information Systems Development Officer for RPM Plus in Zambia from December 2002 to December 2004. He contributed to the development and implementation of the VCTS and PMTCT commodity and information and management systems projects. Mr. Muneene previously served as a head of Information Technology Department at the Licef School in Zambia, and as consultant for the Zambia Ministry of Education's Curriculum Development Centre prior to joining RPM Plus. He holds a national diploma in Computer Studies and an advanced certificate in Teaching Methodology.

Rose Malunga serves as RPM Plus Office Manager for the Zambia office. She has nearly 14 years of work experience. She has held senior administrative positions in leasing, insurance, retail, and auditing organizations in Zambia. She assists the Regional Technical Adviser with general operations, including finances and accounting, maintaining office supply inventory and records in accordance with USAID requirements, and coordinating logistics for training activities. She holds an Advanced Secretarial certificate and a diploma in Business Administration.

ANNEX 4. CATALOG OF DOCUMENTS

Pharmaceutical Management

Central Board of Health (CBoH)/Zambia. 2002. *District Integrated Logistics Self-Assessment Tool* (*DILSAT).* Lusaka: CBoH.

Dik, J., V. Dias, O. Hazemba, et al. 2002. *Alternative Supply System for Health Commodities: Assessment Mission Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Hazemba, O. 2002. *Development of Training of Trainers DILSAT Drug Supply Management Modules.*

Hazemba, O. 2002. *Procurement of Essential Drugs*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Mwamba, F. Z. 2005. *Report on Editing of National Medical Laboratory Safety Manual at All Levels of Care, August 17–19, 2005, Lake Safari Lodge, Siavonga.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Voluntary Counseling and Testing

User Manual for VCT Information and Commodities Management Information System (Database Software). 2004. Zambia Ministry of Health, Central Board of Health (CBoH). Produced with support from the U.S. Agency for International Development through Management Sciences for Health Rational Pharmaceutical Management (RPM) Plus Program

Procedures Manual for Management Information System of Zambia Voluntary Counseling and Testing Service. Version 03.1. May 2003. Zambia Central Board of Health (CBoH). Produced with support from the U.S. Agency for International Development through Management Sciences for Health Rational Pharmaceutical Management (RPM) Plus Program

User Manual for VCT/PMTCT Information and Commodities Management Information System (Database Software). 2005. Zambia Ministry of Health, Central Board of Health (CBoH). Produced with support from the U.S. Agency for International Development through Management Sciences for Health Rational Pharmaceutical Management (RPM) Plus Program

Procedures Manual for Management Information System of Zambia Voluntary Counseling and Testing Service VCT/PMTCT. 2004. Zambia Central Board of Health (CBoH). Produced with support from the United States Agency for International Development through Management Sciences for Health Rational Pharmaceutical Management (RPM) Plus Program

VCT/PMTCT Registers. Designed and printed with support from the RPM Plus Program

1. VCT/PMTCT Monthly Report
2. ZVCTS Facility Monthly Laboratory Test Reporting Format (FMLP03.1)
3. ZVCTS Facility Monthly Test Kits and Other Supplies Inventory Report (FMIRP03.1)
4. ZVCTS Facility Annual VCT Reporting Format (FARP03.1)
5. MTCT Labour Ward Register
6. General Voluntary Counseling & Testing Register (VCT Form 1)
7. Integrated VCT/PMTCT Client Service Register (Form 2)

VCT/PMTCT Indicators

POSTER: Improving Access to HIV/AIDS Pharmaceuticals

POSTER: Strengthening the VCT Information and Commodity Supply System and Integrating VCT and PMTCT Activities in Zambia

Commodity Management in VCT Programs: A Planning Guide. 2002. Helena Walkowiak and Michael Gabra, Management Sciences for Health (MSH). In collaboration with Eric van Praag, Deborah Boswell, Gina Dallabetta, Gloria Sangiwa, Deborah Murray, Jane Harriet Namwebya, and John Cutler of Family Health International (FHI).

Reports

Hazemba, O. 2002. *Information Collection on VCT Activities in ZAMBIA for formulation of national VCT Data information system. Trip Report:* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Bhattarai, H. R., O. Hazemba, and S. Thomas. 2002. *Trip Report: Zambia'sVoluntary Counseling and Testing Services Management Information System*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Presentation: *Strengthening Zambia VCT Services: Management and Information System*. Rational Pharmaceutical Management Plus Program. Management Sciences for Health

Bhattarai, H. R., O. Hazemba, and D. Muneene. 2003. *Design of the VCT Information and Commodities Management System Database and Preliminary Work on the PMTCT Information System, October 2003: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

VCT Post- Assessment Planning Framework. November 2002. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Presentation: *Strengthening Zambia VCT Services: Planning Framework.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Antimicrobial Resistance

Joshi, M., S. Zimicki, and M. Sumner. 2004. *Initiation of Antimicrobial Resistance Country-Level in Zambia, March 2–13, 2004. Trip Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Joshi, M., N. Pollock, and M. Miralles. 2004. *Antimicrobial Resistance Country-Level Implementation Pilot in Zambia: Follow-Up Visit, August, 2004: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Joshi, M, N. Pollock, and K. Garrison. 2004. A*ntimicrobial Resistance Stakeholders' "Call for Action" Meeting, Lusaka, November 12, 2004*: *Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Joshi, M. 2005. *Implementation of Standard Treatment Guidelines to Support Antimicrobial Resistance (AMR) Containment in Zambia, June 27–29, 2005: Workshop Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Joshi, M., O. Hazemba, and N. Pollock. *Supporting Country-Level Strategies for Advocacy and Containment of Antimicrobial Resistance*. Presentation for 2005 SEAM Conference. Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Soisson, D., and L. Shafritz. *Zambia Trip Report: Message, Advocacy and Communication Workshops: Lusaka, Zambia, February–March, 2005*. Boston: Academy for Educational Development.

Sosa, A. 2005. *The APUA-Zambia Chapter as the Local Champion in the Advocacy for Antimicrobial Resistance Country-Level Implementation Pilot in Zambia, February 12–19, 2005: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Child Health

Nachbar, N., J. Briggs, O. Aupont, et al. 2003. *Community Drug Management for Childhood Illness: Assessment Manual.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Reports

Gabra, M., and O. Hazemba. 2000. *Zambia Assessment: Drug Management for Childhood Illness*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Project. Arlington, VA: Management Sciences for Health.

Hazemba, O., A. Johnson, J. Briggs, et al. 2005. *Community Medicine Management for Childhood Malaria in Zambia, June 2003: Assessment Report*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Reproductive Health

Reports

Fujisaki, T., O. Hazemba, and M. Gabra 2000. *DRAFT Assessment of Commodity Needs for Integrated Reproductive Health in Zambia. Ver. 7.* Submitted to the U.S. Agency for International Development. Arlington, VA: Management Sciences for Health/Rational Pharmaceutical Management.

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Thomas, S., and O. Hazemba. 2003. *Country Baseline Report: Zambia. Preventing Postpartum Hemmorhage Special Initiative Baseline Assessment.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

ANNEX 5. ART FACILITIES—EQUIPMENT UPGRADES

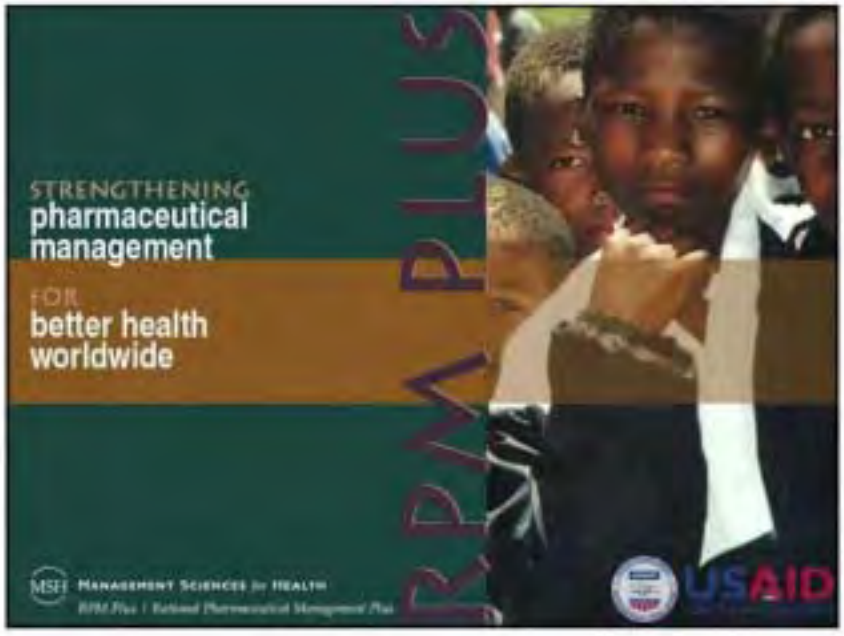
ART facilities that received an Americool 18,000 BTU heating and cooling midwall split air conditioner and a Dell Dimension computer system, September to November 2004—

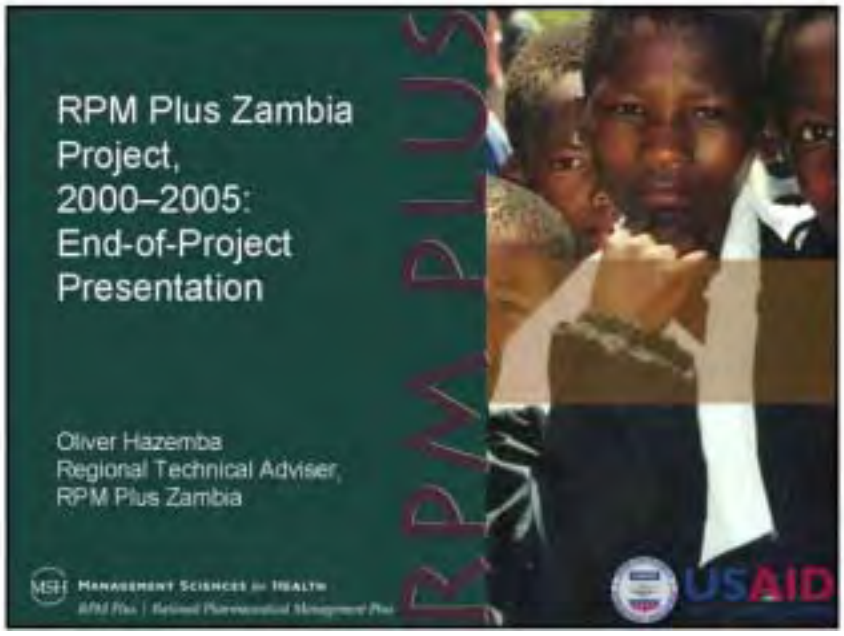
1. Mbala General Hospital
2. Choma General Hospital
3. University Teaching Hospital, Lusaka Pharmacy
4. University Teaching Hospital, Lusaka—Biochemistry Department
5. University Teaching Hospital, Lusaka—Hematology Department
6. Livingstone General Hospital—Pharmacy
7. Livingstone General Hospital—Laboratory
8. Ndola Central Hospital—Pharmacy
9. Ndola Central Hospital—Laboratory
10. Chipata General Hospital
11. Kasama General Hospital
12. Mansa General Hospital
13. Kabwe General Hospital
14. Solwezi General Hospital
15. Arthur Davison Children's Hospital
16. Lewanika General Hospital
17. Kitwe Central Hospital

ART facilities that received Cotech Electronic thermometer/hygrometers, October 2004 to January 2005—

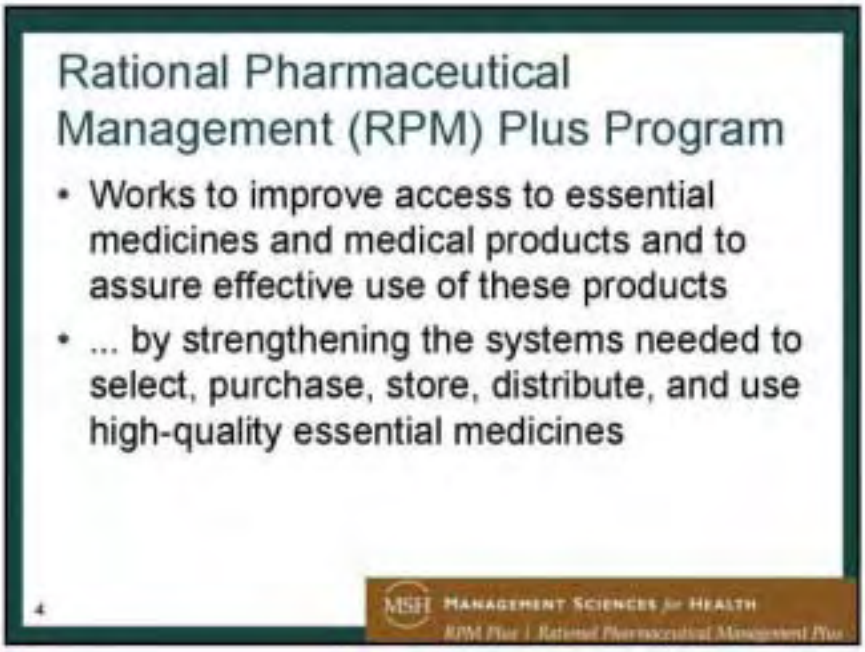
1. Mbala General Hospital
2. Choma General Hospital
3. Livingstone General Hospital
4. University Teaching Hospital, Lusaka
5. Ndola Central Hospital
6. Chipata General Hospital
7. Kasama General Hospital
8. Mansa General Hospital
9. Kabwe General Hospital
10. Solwezi General Hospital
11. Arthur Davison Children's Hospital
12. Lewanika General Hospital
13. Kitwe Central Hospital
14. CIDRZ
15. CBoH
16. Ndola Central Hospital
17. Lusaka Urban District Health Management Clinics
18. ZPCT-supported ART sites

ANNEX 6. ZAMBIA END-OF-PROJECT POWERPOINT PRESENTATION






Program Overview
• Background and Synopsis
• Accomplishments
• Lessons to Share
• Questions and Discussion
• Closing
3
MSH MANAGEMENT SCIENCES for HEALTH


Rational Pharmaceutical Management (RPM) Plus Program
• Works to improve access to essential medicines and medical products and to assure effective use of these products
• ... by strengthening the systems needed to select, purchase, store, distribute, and use high-quality essential medicines
4
MSH MANAGEMENT SCIENCES for HEALTH

Rational Pharmaceutical Management (RPM) Plus Program

- Assisted the Government of the Republic of Zambia (GRZ) in procuring, selecting, quantifying, and distributing medicines, as well as in improving medical store management and promoting rational medicines use

5

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Pharmaceutical Management Cycle

6

MSH MANAGEMENT SCIENCES for HEALTH
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RPM Plus Zambia: Technical Objectives Under USAID
• Strengthen voluntary counseling and testing (VCT) and prevention of mother-to-child transmission (PMTCT) programs
• Develop and integrate an Information and Health Commodities Management Supply System for Zambia VCT services
• Provide assistance to malaria treatment policy implementation
• Increase capacity of medicine supply management and develop interventions at district level
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RPM Plus Zambia: Technical Objectives Under USAID
• Improve rational medicine use at national and district levels
• Improve management of pharmaceutical commodities supporting Integrated Management of Childhood Illness (IMCI) strategy in selected districts
• Strengthen the antiretrovial therapy (ART) pharmaceutical and laboratory services scale-up in 10 hospitals
8
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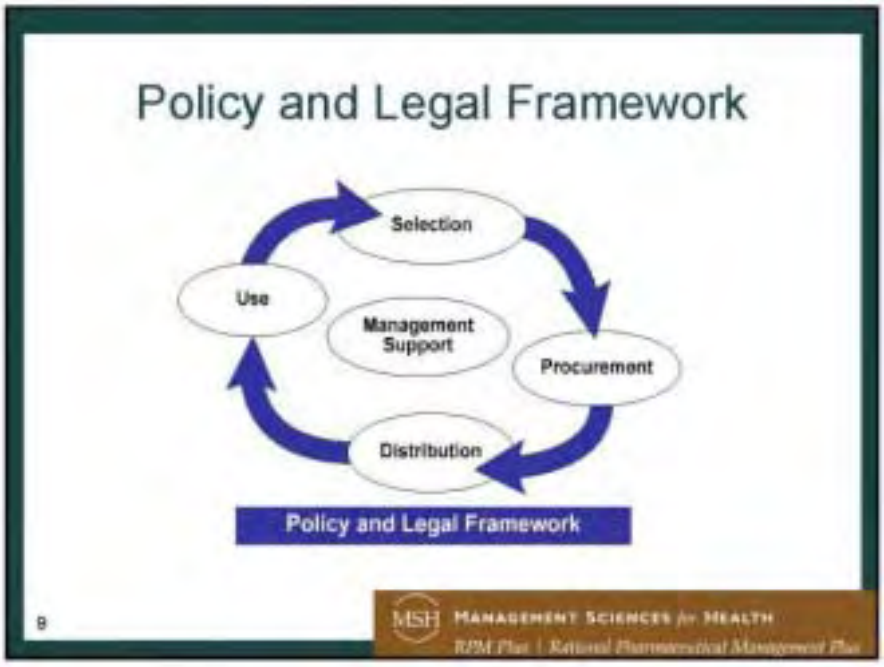
Policy and Legal Framework
Selection
Procurement
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Use
Management Support
Policy and Legal Framework
9
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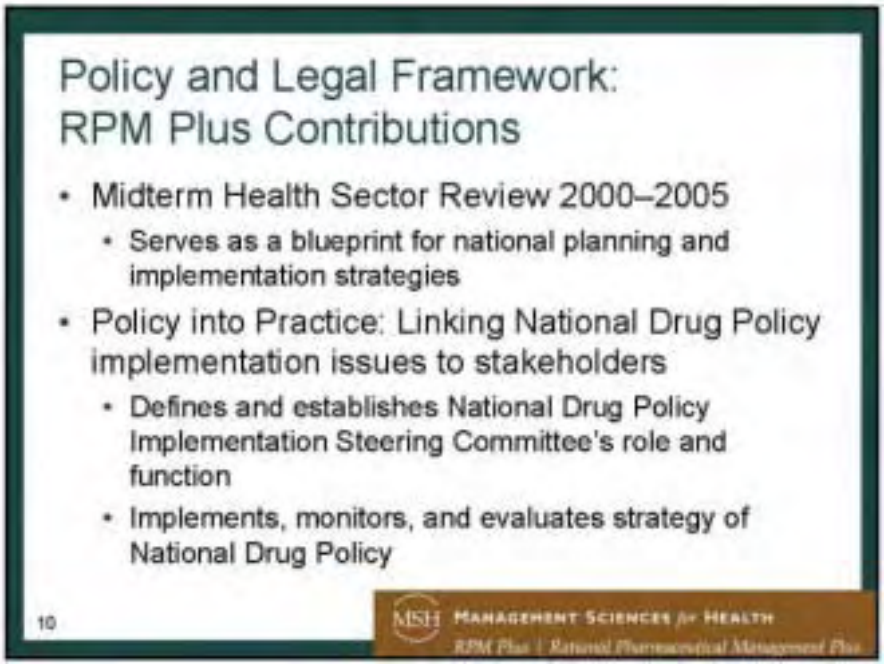
Policy and Legal Framework:
RPM Plus Contributions
• Midterm Health Sector Review 2000–2005
• Serves as a blueprint for national planning and implementation strategies
• Policy into Practice: Linking National Drug Policy implementation issues to stakeholders
• Defines and establishes National Drug Policy Implementation Steering Committee's role and function
• Implements, monitors, and evaluates strategy of National Drug Policy
10
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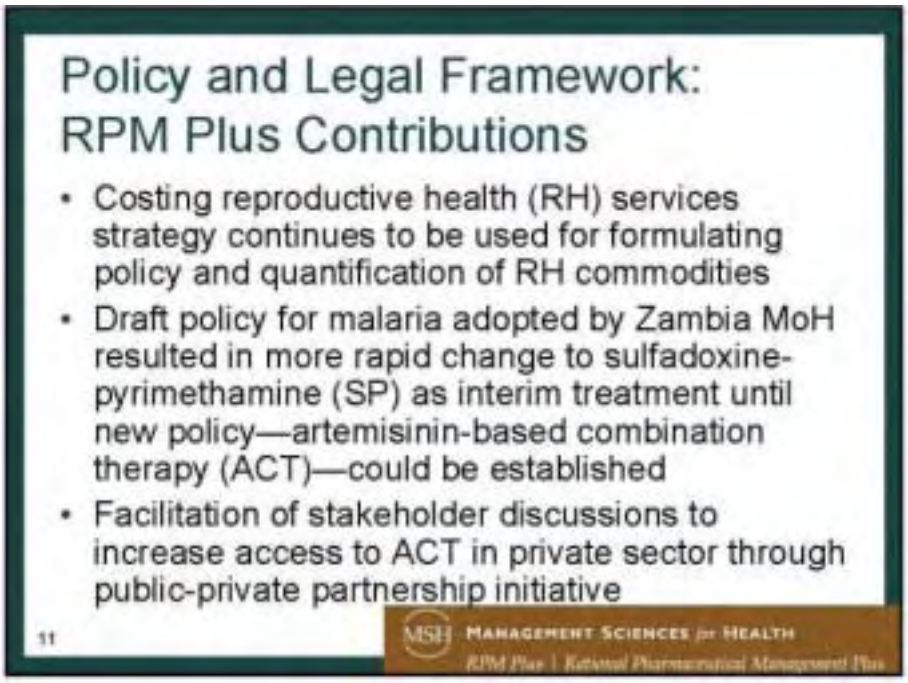
Policy and Legal Framework:
RPM Plus Contributions
• Costing reproductive health (RH) services strategy continues to be used for formulating policy and quantification of RH commodities
• Draft policy for malaria adopted by Zambia MoH resulted in more rapid change to sulfadoxine-pyrimethamine (SP) as interim treatment until new policy—artemisinin-based combination therapy (ACT)—could be established
• Facilitation of stakeholder discussions to increase access to ACT in private sector through public-private partnership initiative
11
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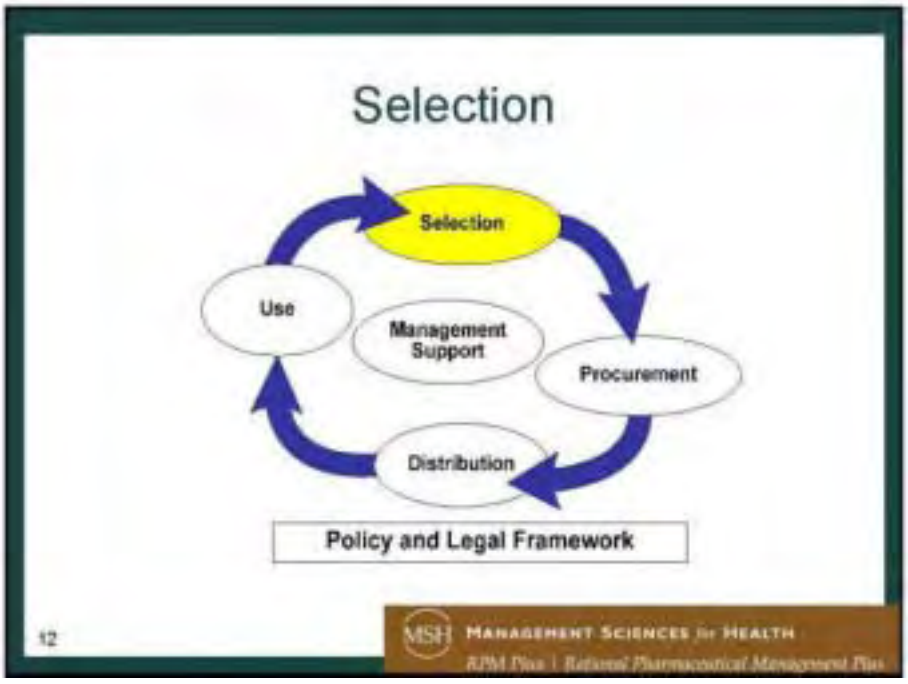
Selection
Selection
Use
Management Support
Procurement
Distribution
Policy and Legal Framework
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Zambia National Formulary

- Since 2001, RPM Plus facilitated operations of the Zambia National Formulary Committee
  - Worked with committee members to develop materials for publication and facilitated access to information
- Procurement is based on evidence-based information of medicines performance
- Health workers now have a source of unbiased information for prescribing and using efficacious, safe, high-quality, and cost-effective essential medicines

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Standard Treatment Guidelines and Essential Medicines List

Development and national dissemination of—

- Standard Treatment Guidelines (STGs)
- Essential Medicines List (EML)
- Essential Laboratory Supplies List

Official launching of the Standard Treatment Guidelines, 2004

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Standard Treatment Guidelines and Essential Medicines List
• Available and used throughout Zambia
• Provides improved performance in the management of diseases and conditions
• Effective treatment promotes patient confidence in providers, and reduces treatment costs and patient suffering
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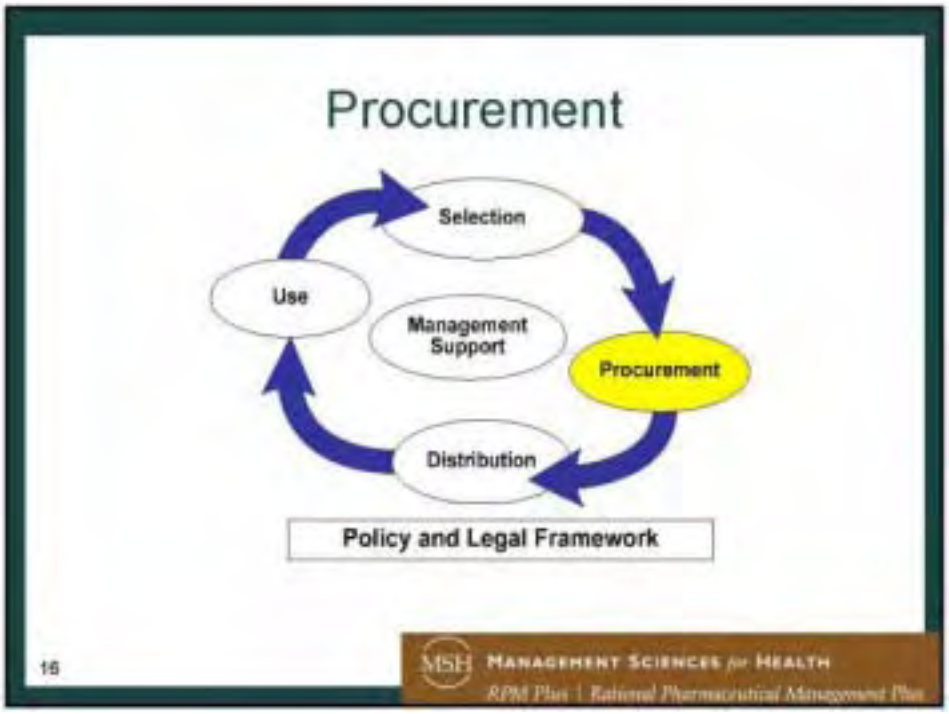
Procurement
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Management Support
Procurement
Distribution
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Procurement: RPM Plus Contributions

- Participation in Procurement Technical Working Group
- Peer review and quantification of essential medicines
- Participation in review team on procurement and development of pharmaceutical supply budget line mission for sustainable medicine financing
- Advised on selection and quantification of medicines for sexually transmitted infections (STIs) using cost-estimate strategy

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Distribution

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Improved Management of Medical Stores Limited (MSL)

- Alternative Distribution and Supply System (ADSS) Assessment
  - GRZ and cooperating partners made informed decisions
  - Much needed medicines were procured
  - Process for contracting out MSL was initiated immediately, with focus on assuring transparency
  - A new tender was awarded to Crown Agents

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Improved Management of Medical Stores Limited (MSL)

Installation of inventory and procurement management software, 2nd edition (INVEC-2), in 1998 and anticipated upgrade to ORION@MSH

- Improved integrated inventory management of health commodities at MSL

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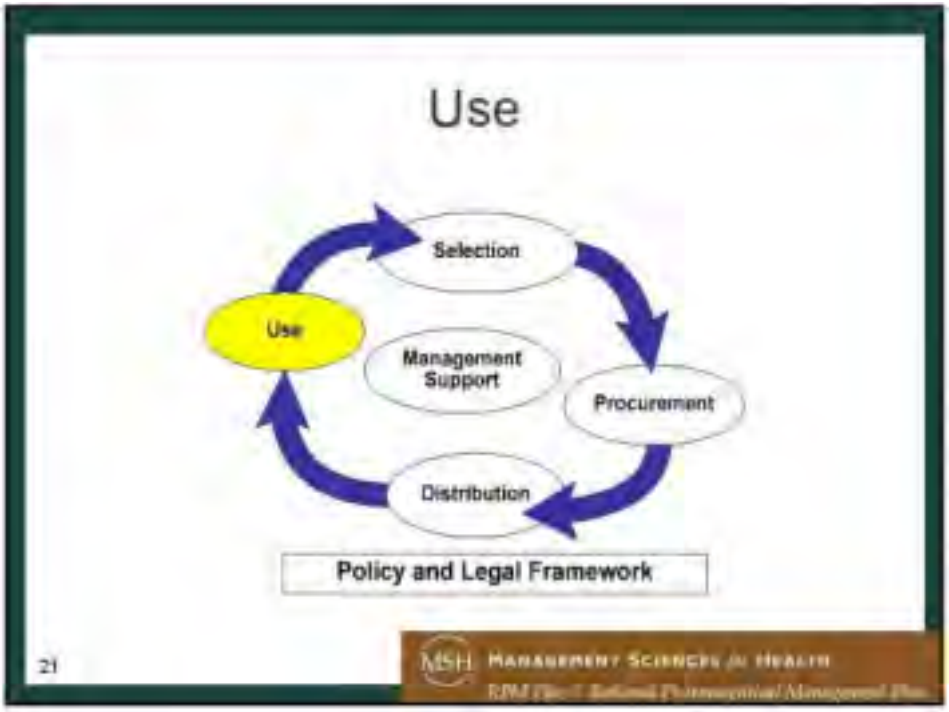
Use
Selection
Use
Management Support
Procurement
Distribution
Policy and Legal Framework
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Antimicrobial Resistance
• Two new groups established—
• Alliance for Prudent Use of Antibiotics (APUA) Zambia Chapter: advocates and promotes rational use of antibiotics
• 10-member AMR advocacy working group (AWG): promotes containment of AMR and preservation of available medicines
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Antimicrobial Resistance

- AMR Stakeholders "Call for Action" Meeting held November 2004
  - First national conference bringing health workers, government, journalists, and community together to address national AMR issues
  - Advocacy and communication materials provided training for health workers and journalists to advocate for AMR issues

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AMR Stakeholders' "Call for Action" Meeting, November 2004: Lusaka, Zambia

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Workshop on Implementation of STGs to Support Antimicrobial Resistance (AMR) Containment in Zambia, June 2005

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PRDU and DTC Workshops

- Promotion of Rational Drug Use (PRDU) Workshops
  - Health workers trained in promoting and teaching rational use of medicines
- Drugs and Therapeutics Committee (DTC) Workshops
  - Public sector pharmacists learned how to make DTCs functional and effective in promoting rational use of medicines

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Rational Use in Malaria
In collaboration with the Applied Research on Child Health (ARCH) project—
• Study in acceptability and use of Sulphadoxine-Pyrimethamine (SP) among health workers and community members in Lusaka and Chipata Districts
• Provided information for information, education, and communication (IEC) working group to develop materials for appropriate use of SP in malaria treatment and intermittent preventive treatment (IPT) in pregnancy
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Rational Use in Malaria
• Development and application of Community-level Drug Management for Childhood Illness (C-DMCI) tool for assessment of malaria in children
• Findings to be used for malaria management and child survival, policy development, and programming
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Management Support
Selection
Use
Management Support
Procurement
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Policy and Legal Framework
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Management Support
• District Integrated Logistics Self-Assessment Tool (DILSAT)
• Revision and implementation of formats used for ordering, inventory management, and reporting
• Support to the National TB Global Facility Review Missions in 2003 and 2004
• Zambia accessed WHO Global TB Drug Facility (GDF) first-line anti-TB Drugs
• Pharmacy internship program
• Provides experience for graduate pharmacists
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ART SOPs for Pharmacy and Laboratory Management

- SOPs provide quality standards for ART services
- Used in all ART facilities

The Director General of Central Board of Health officially launching the ART Pharmacy and Lab SOPs, August 2005

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Training in ART Commodity Management

- Over 80 pharmacy and laboratory personnel from hospitals that provide ART received training
- Improved commodities and information management
- Improved management of patient care and diagnostics

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Capacity Development in ARV Quantification

- Pharmacy staff from ART hospitals received training on facility-based quantification and Quantimed
  - Evidence-based determination of requirements for procurement
  - Used the skills and Quantimed for national quantification of ARVs for 2006–2007

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VCT/PMTCT Information and Health Commodities Management Supply System

- RPM Plus worked collaboratively with VCT Partnership and VCT Technical Working Groups to develop—

1. Common indicators
2. Manual tools (forms, registers and procedures) for data collection, capture, analysis, and reporting
3. Procedures and user's manuals

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VCT/PMTCT Information and Health Commodities Management Supply System

- Integrated VCT/PMTCT commodity management system developed for facility-, district-, and provincial-level managers

- Manual system used in 72/72 districts (450 facilities)
- Automated system used in 69/72 districts
- Vital VCT/PMTCT and commodity management information for decision making is available at various levels of management

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A look at the VCT/PMTCT registers at Mazabuka District Hospital VCT Centre: September 2005

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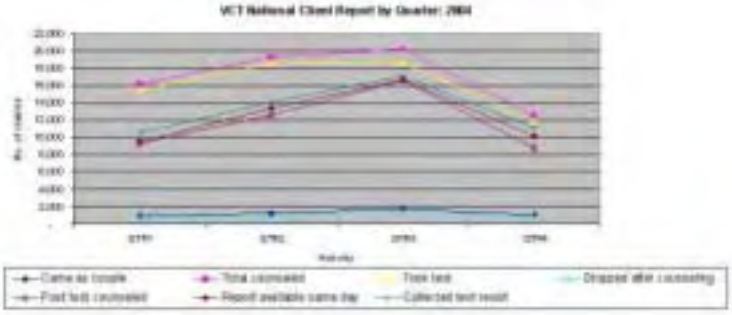
Sample Report: VCT Client Service Uptake by Quarter

National Level, 2004



Source: National VCT/PMTCT Database

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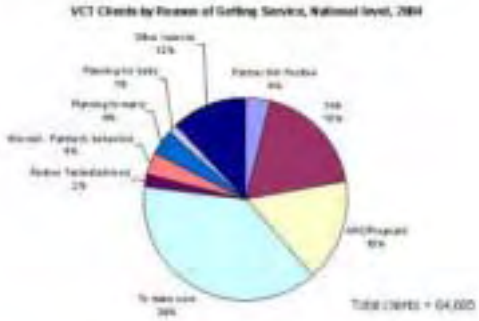
Sample Report: VCT Clients by Reason of Getting Service

National Level, 2004



Source: National VCT/PMTCT Database

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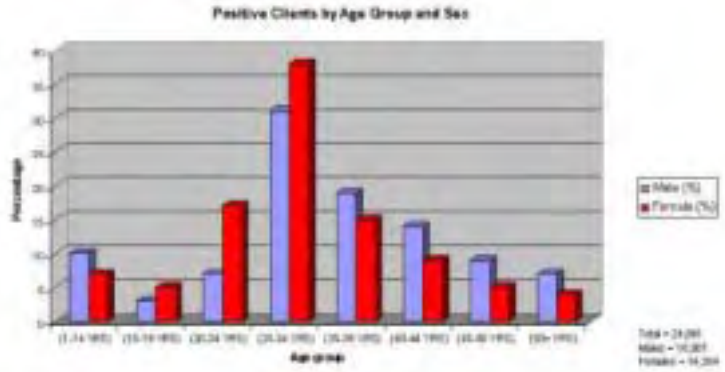
Sample Report: Percentage of Positive Clients by Age Group and Sex
National Level, 2004



Source: National VCT/PMTCT Database

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ARV Dispensing Tool

- Microsoft ACCESS-based computer tool that maintains a dispensing record for each of the patients getting medicines from the dispensing pharmacy
- Management Information Systems (MIS) tool

- Primarily targeted for use by ARV medicine dispensers for dispensing purposes and for keeping stock management records

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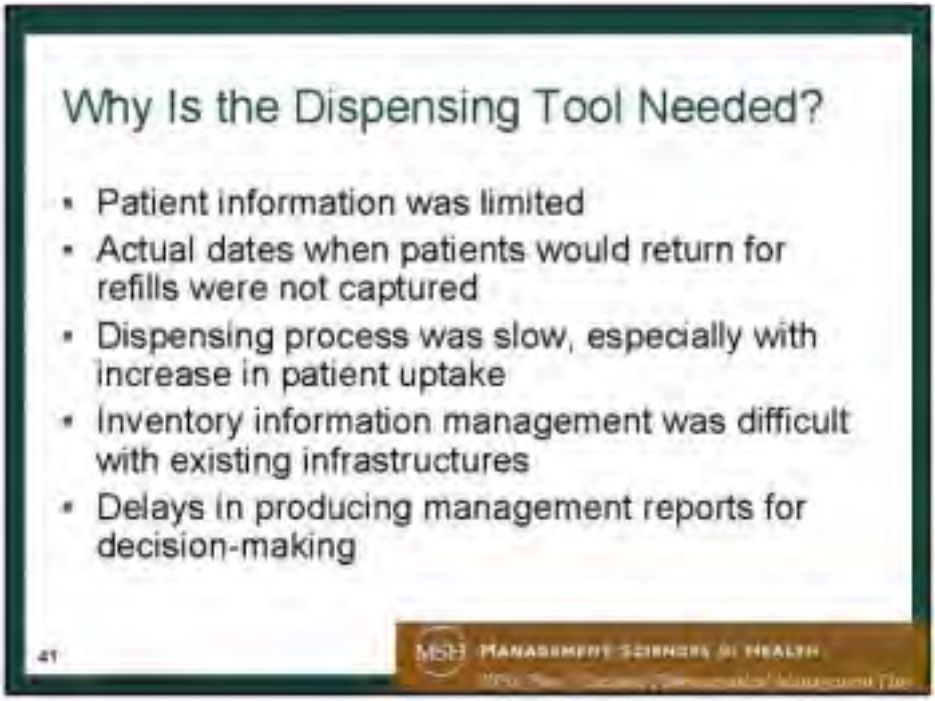
Why Is the Dispensing Tool Needed?
• Patient information was limited
• Actual dates when patients would return for refills were not captured
• Dispensing process was slow, especially with increase in patient uptake
• Inventory information management was difficult with existing infrastructures
• Delays in producing management reports for decision-making
41


ARV Dispensing Tool: Key Features
• Patient profiles (adherence)
• Scale-up trends (program behavior)
• Prescribing patterns (regimens)
• Inventory management (stock availability)
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ARV Dispensing Tool: Key Features
• Pharmaceutical care, medication counseling, and supply management are improved
• Trends in client ARV medication utilizations are tracked, analyzed, and understood
• Adherence is monitored by way of analyzing refill dates
• Dispensing process is faster
• Actual dates as to when patients return for refills is captured
• Updating of data and preparation of reports is much easier and quicker
• Providers have more time for patient care
• Stock management is improved
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ARV Dispensing Tool:
Installation and Training
• Adopted in over 40 public and faith-based hospitals throughout the country
• Pharmacy and data management specialists trained in the use and maintenance of the tool
• User's manual provided for all facilities using the tool
• User's manual provided to districts for additional sites planning to adopt the tool

Benefits of the ARV Dispensing Tool

Testimony from Dr. Caroline Chibawe-Phiri, Livingstone Hospital

- When we first received information produced by the ARV Dispensing tool from the pharmacy, we noticed that PMTCT patients were not being captured.
- As a result, management made a decision to strengthen PMTCT services at the hospital and capture the data.
- The information available then led to plans for ART and TB training at the institution.
- Timely and up-to-date reports have come to our rescue when MoH/CBoH, politicians, and journalists knock on our door.

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The Pharmaceutical Services Manager at Ndola Central Hospital Pharmacy Working with the ARV Dispensing Tool

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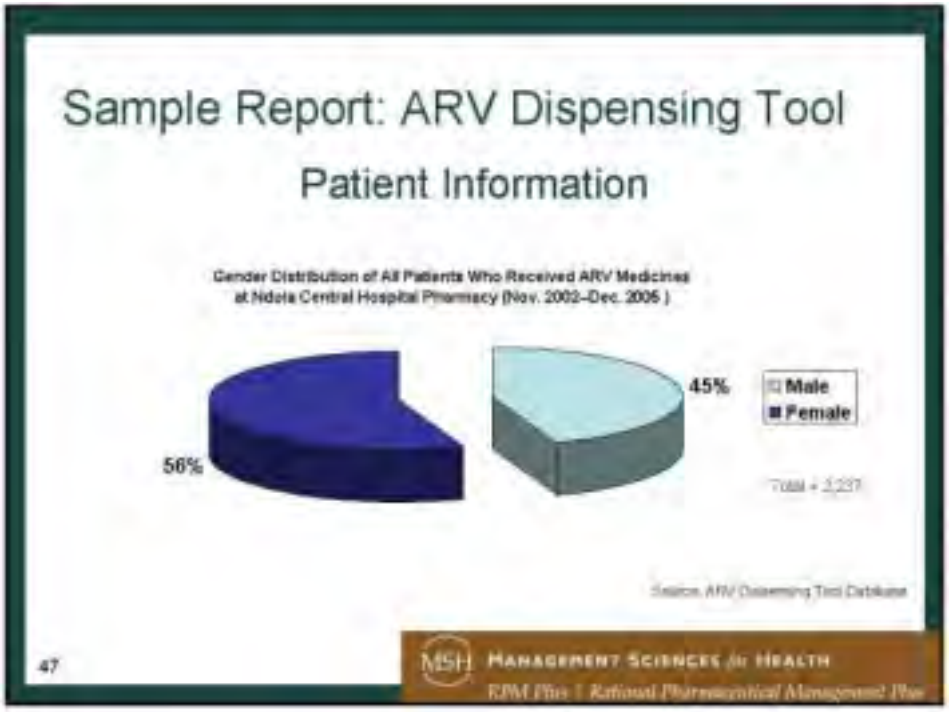
Sample Report: ARV Dispensing Tool
Patient Information
Gender Distribution of All Patients Who Received ARV Medicines at Ndola Central Hospital Pharmacy (Nov. 2002–Dec. 2006)
56%
45%
Male
Female
47
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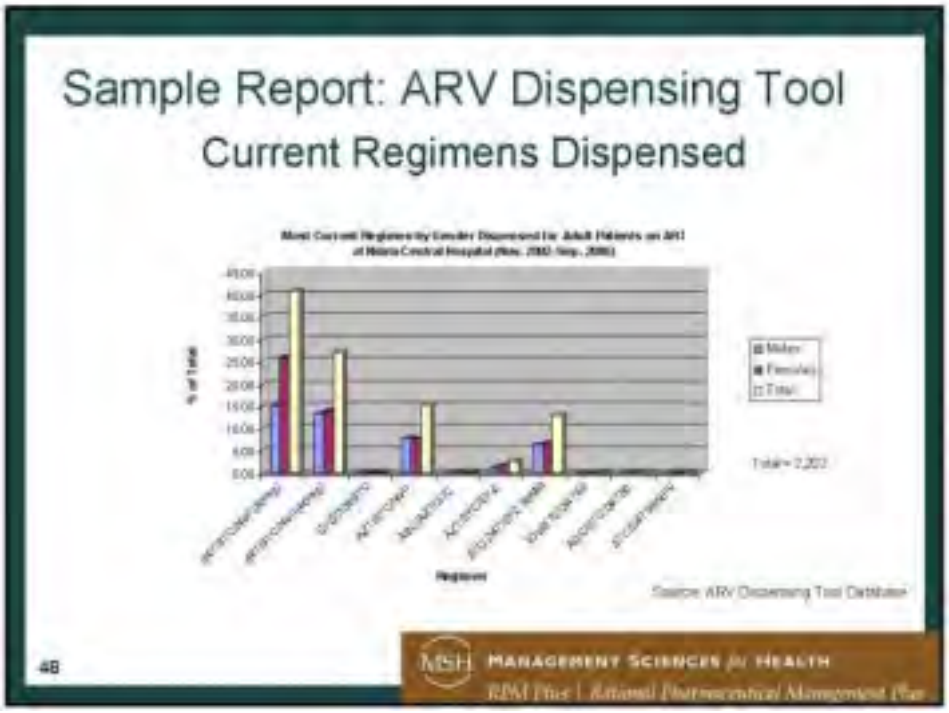
Sample Report: ARV Dispensing Tool
Current Regimens Dispensed
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Sample Report: ARV Dispensing Tool

Number of New Patients: Adult ART

Source: ARV Dispensing Database

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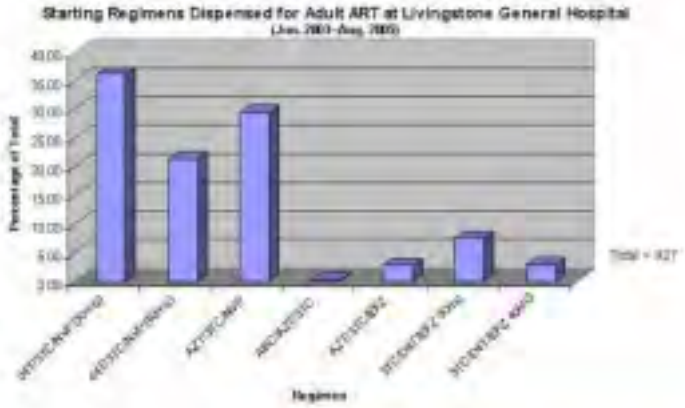
Sample Report: ARV Dispensing Tool

Regimens Dispensed



Source: ARV Dispensing Database

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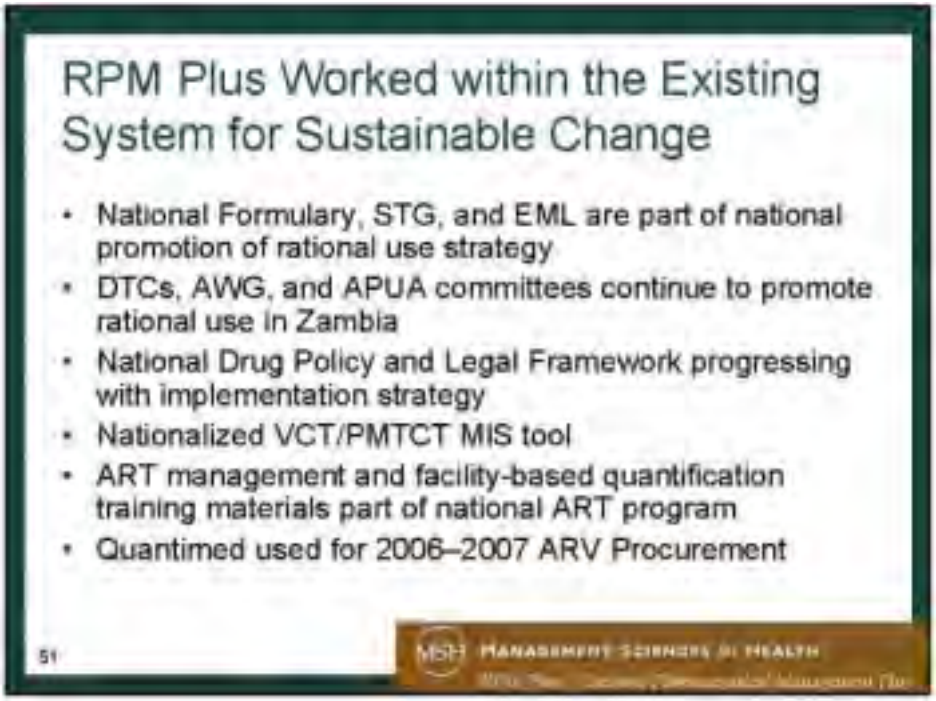
RPM Plus Worked within the Existing System for Sustainable Change
• National Formulary, STG, and EML are part of national promotion of rational use strategy
• DTCs, AWG, and APUA committees continue to promote rational use in Zambia
• National Drug Policy and Legal Framework progressing with implementation strategy
• Nationalized VCT/PMTCT MIS tool
• ART management and facility-based quantification training materials part of national ART program
• Quantimed used for 2006–2007 ARV Procurement
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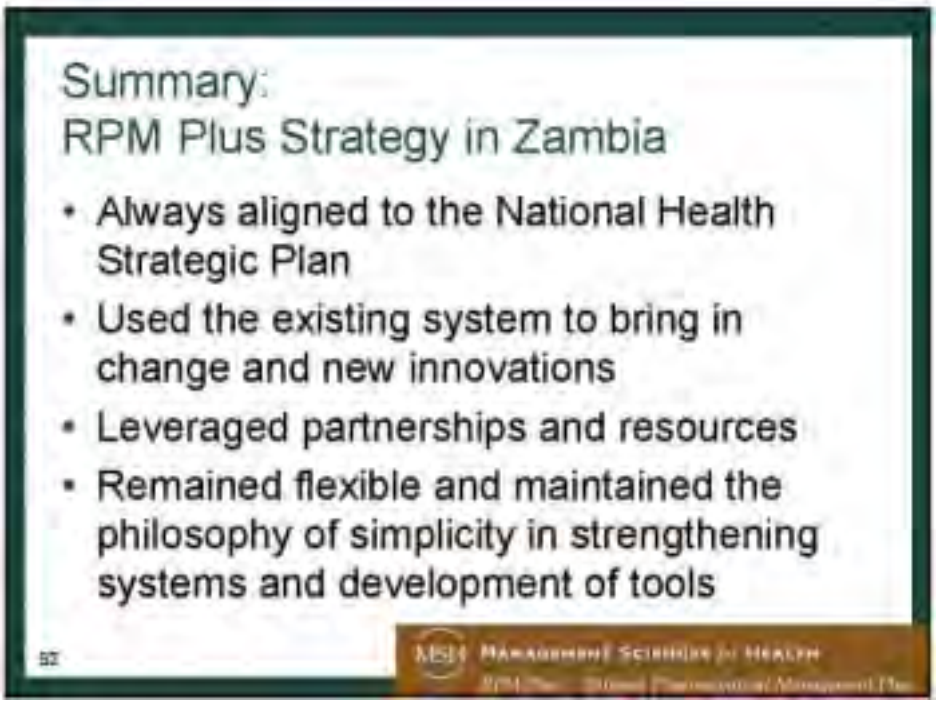
Summary:
RPM Plus Strategy in Zambia
• Always aligned to the National Health Strategic Plan
• Used the existing system to bring in change and new innovations
• Leveraged partnerships and resources
• Remained flexible and maintained the philosophy of simplicity in strengthening systems and development of tools
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Summary: Lessons to Share
• To ensure sustainable development, build capacity of the local people
• Pharmaceutical management requires comprehensive strategic approaches covering the entire management cycle
• Strengthen the existing systems and sustain the investment
• Zambia's health sector reforms are dependant on partnership, complementing each other's efforts
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Thank you
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